

MEMORANDUM

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FROM: Mr. Jeffrey S. Dirk, P.E., PTOE, FITE
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Professional Engineer in CT, MA, ME, NH, RI and VA

DATE: September 15, 2022

RE: 9361

SUBJECT: Transportation Impact Assessment
Proposed Age-Qualified Multifamily Residential Development – 10 High Street
Topsfield, Massachusetts

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of an age-qualified residential development to be located at 10 High Street (Route 97) in Topsfield, Massachusetts (hereafter referred to as the “Project”). This study evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project along Route 97 and at the Main Street/High Street/High Street Extension, High Street/East Common Street, and High Street/South Common Street intersections. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),¹ the Project is expected to generate approximately 144 vehicle trips on an average weekday (two-way, 24-hour volume), with 9 vehicle trips expected during the weekday morning peak-hour and 11 vehicle trips expected during the weekday evening peak-hour;
2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), acknowledging that one or more movements at the study area intersections are currently operating or are predicted to operate at or over capacity (i.e., level-of-service (LOS) “E” or “F”, respectively) independent of the Project;
3. All movements at the Project site driveway intersection with High Street are predicted to operate at LOS C with negligible vehicle queuing predicted, with actual operating conditions expected to be related to vehicle queuing on the High Street approach to Main Street;

¹*Trip Generation*, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.



4. Independent of the Project, the Main Street/High Street/High Street Extension intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections. As such, specific recommendations have been provided to advance safety-related improvements at the intersection;
5. Lines of sight at the Project site driveway intersection with High Street were found to exceed or can be made to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with the implementation of the recommendations defined herein.

The following details our assessment of the Project.

PROJECT DESCRIPTION

The Project will entail the construction of a 44± unit, age-qualified (age 55+), multifamily residential development to be located at 10 High Street (Route 97) in Topsfield, Massachusetts. The Project site encompasses approximately 12.5± acres of land bound by residential properties and areas of open and wooded space to the north; residential properties, High Street, Deer Run and low-lying wetland areas to the south; residential properties, areas of open and wooded space and low-lying wetland areas to the east; and a residential property and the Joyful Noises Preschool to the west. The Project site currently contains areas of open and wooded space that include sports fields that will be removed to accommodate the Project. Figure 1 depicts the Project site location in relation to the existing roadway network.

Access to the Project will be provided by way of a new driveway that will intersect the north side of High Street opposite South Common Street. Off-street parking will be provided for 44 vehicles in a surface parking lot, or a parking ratio of 1.0 parking spaces per unit.

STUDY METHODOLOGY

This study was prepared in consultation with MassDOT and the Town of Topsfield; was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; on-street parking; public transportation services; observations of traffic flow; and collection of pedestrian, bicycle, and vehicle counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon was selected for analyses consistent with MassDOT guidelines. The analysis conducted in stage two identifies existing or projected future capacity, safety, and access issues, as these areas relate to the transportation infrastructure.

The third stage of the study presents and evaluates measures to address deficiencies in the transportation infrastructure, if any, identified in stage two of the study.





Figure 1
Site Location Map

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in May 2022. This inventory included the collection of traffic-volume data and vehicle travel speed measurements, as well as a review of existing pedestrian and bicycle accommodations, public transportation services, and motor vehicle crash data. The following summarizes existing conditions within the study area.

Roadway

High Street (Route 97)

High Street is a two-lane, urban minor arterial roadway that traverses the study area in a general east-west direction and is under Town jurisdiction. In the vicinity of the Project site, High Street provides two 11 to 12-foot-wide lanes that are separated by a double yellow centerline, with 3 to 4-foot-wide marked shoulders. The posted speed limit in the vicinity of the Project site is 25 miles per hour (mph), changing to 30 mph to the east. A 20 mph School Zone has been established for the segment of High Street between 14 High Street (approximate) and Main Street that is in effect on school days when children are present. A Sidewalk is provided along the south side of the roadway east of South Common Street. Street lights are not provided in the vicinity of the Project site. Land use along High Street within the study area consists of the Project site, residential properties, the Topsfield Town Library, the Joyful Noises Preschool and areas of open and wooded space.

Intersections

Table 1 and Figure 2 summarize existing lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersections as observed in May 2022.

Table 1
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type^a	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Main St./ High St./ High St. Ext.	S	1 general-purpose travel lane on all approaches	Yes; 2 to 3-feet on all legs	Yes; a sidewalk is provided along the west side of Main St., with a marked crosswalk provided for crossing the High St. Ext. approach	Yes; shared-traveled way ^b
High St/ East Common St.	S	1 general-purpose travel lane on all approaches	Yes; 3-feet on High St.	No	Yes; shared-traveled way
High St./ South Common St.	S	1 general-purpose travel lane on all approaches; South Common St. is one-way (approaching High St.); on-street parking provided along both sides of South Common St.	Yes; 3 to 4-feet on High St.	Yes; sidewalks are provided along the south side of High St. and the east side of South Common St.	Yes; shared-traveled way

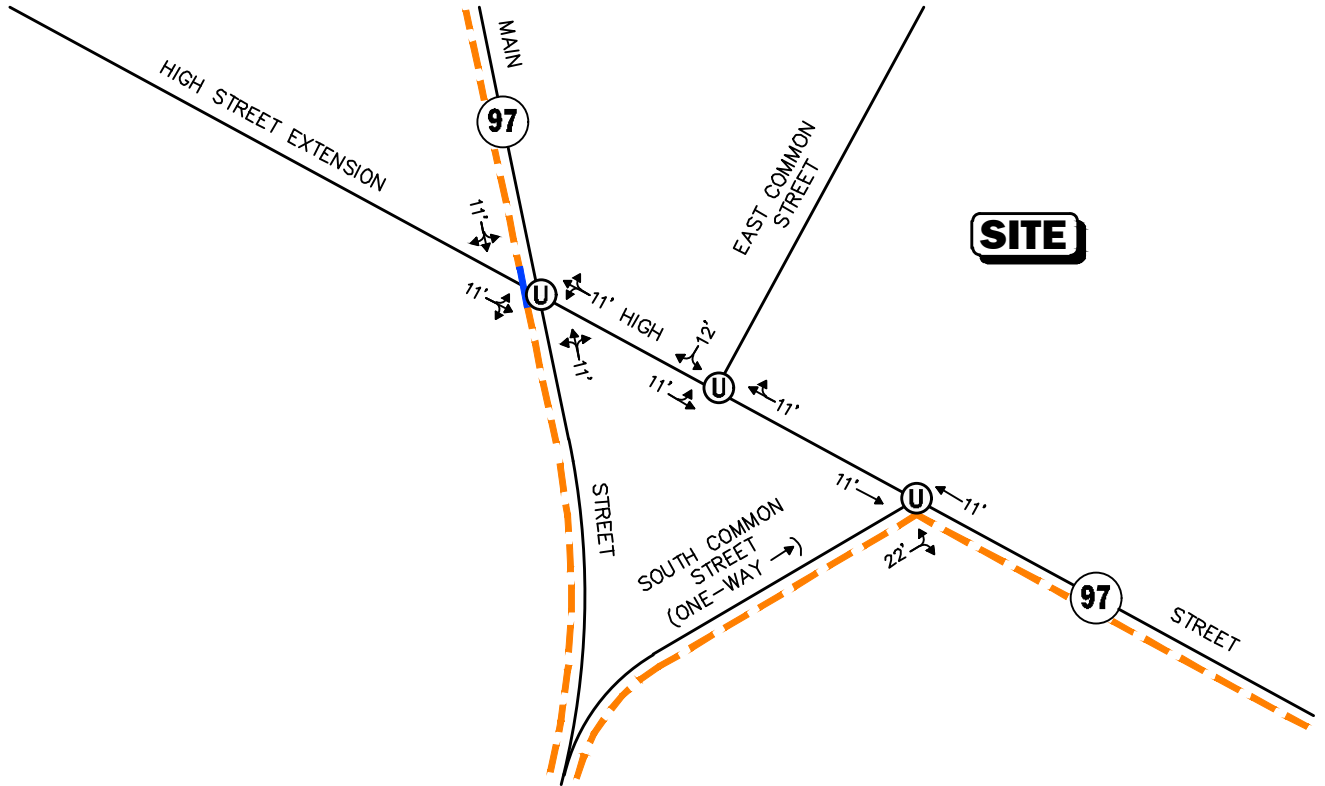
^aS = STOP-sign control.

^bCombined shoulder and travel lane width equal to or exceed 14 feet.



Legend:

- ⓪ Unsignalized Intersection
- - - Sidewalk
- Crosswalk
- xx' ↔ Lane Use and Travel Lane Width



SITE

Not To Scale

Figure 2

Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities



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Existing Traffic Volumes

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, turning movement counts (TMCs), and vehicle classification counts were completed in May 2022. The ATR counts were conducted on High Street, west of South Common Street, on May 4th and 5th, 2022 (Wednesday through Thursday, inclusive) in order to record weekday traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak-period TMCs performed at the study intersections on May 4th, 2022 (Wednesday). These time periods were selected for analysis purposes as they are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, traffic-volume data from MassDOT Continuous Count Station No. 5085 located on Interstate 95 (I-95) in Boxford were reviewed. Based on a review of this data, it was determined that traffic volumes for the month of May are approximately 3.2 percent *above* average-month conditions. As such, a seasonal adjustment was not required as the May traffic volume data is representative of traffic-volume conditions that are higher than those under average-month conditions.

In order to account for the impact on traffic volumes and trip patterns resulting from the COVID-19 pandemic, traffic volume data collected at MassDOT Continuous Count Station No. 35 located on the Yankee Division Highway in Beverly in May 2019 were compared to May 2022 traffic volumes that were collected at the same location. Based on this pre- and post-COVID-19 traffic-volume comparison, the traffic-volume data that was collected as part of this assessment was found to be approximately 5.5 percent *below* the traffic-volume conditions that existed prior to the COVID-19 pandemic. After accounting for the May traffic volumes being 3.2 percent *above* average-month conditions, the raw traffic volumes were adjusted upward by 2.3 percent² to be representative of traffic volumes conditions that existed prior to the COVID-19 pandemic.

The 2022 Existing traffic volumes are summarized in Table 2, with the weekday morning and evening peak-hour traffic volumes graphically depicted on Figure 3. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the TMCs and are reflected on the aforementioned figures.

Table 2
2022 EXISTING TRAFFIC VOLUMES

Location/Peak-Hour	AWT ^a	VPH ^b	K Factor ^c	Directional Distribution ^d
<i>High Street, west of South Common Street:</i>	6,570	--	--	--
Weekday Morning (7:45 – 8:45 AM)	--	684	10.4	66.5% EB
Weekday Evening (4:00 – 5:00 PM)	--	652	9.9	71.6% WB

^aAverage weekday traffic in vehicles per day.

^bVehicles per hour.

^cPercent of daily traffic occurring during the peak-hour.

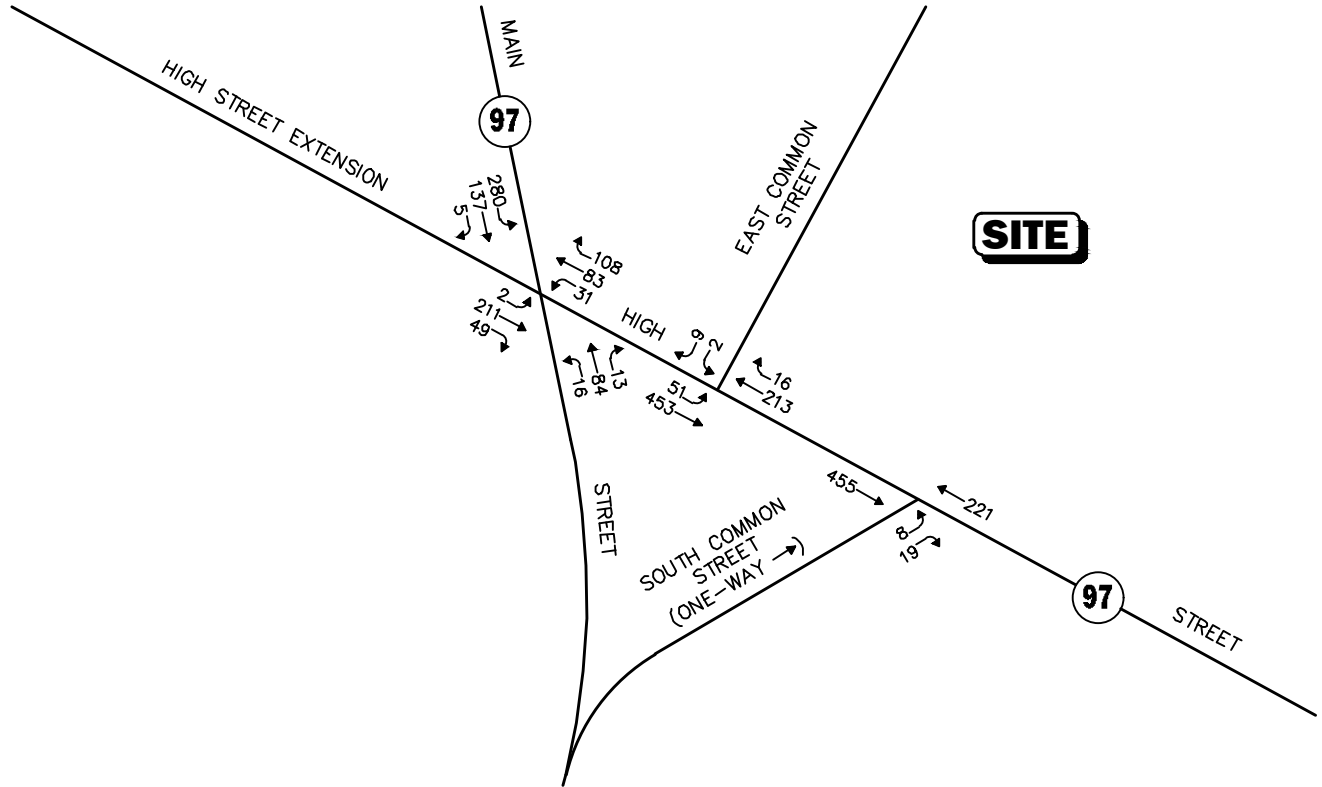
^dPercent traveling in peak direction.

EB = eastbound; WB = westbound.

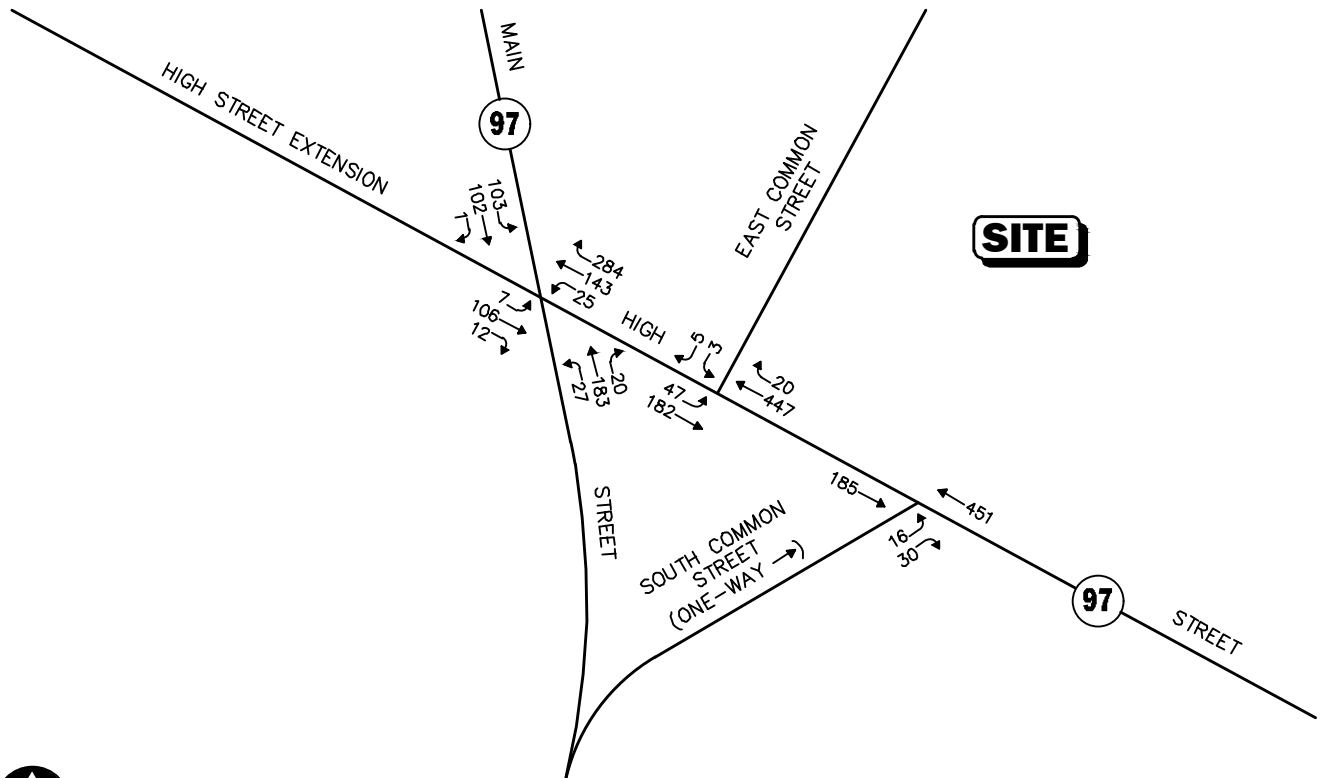
²The difference between the COVID-19 adjustment (+5.5 percent) and the seasonal adjustment (-3.2 percent).



WEEKDAY MORNING PEAK HOUR (7:45 TO 8:45 AM)



WEEKDAY EVENING PEAK HOUR (4:00 TO 5:00 PM)



Not To Scale Figure 3



2022 Existing Peak-Hour Traffic Volumes

As can be seen in Table 2, High Street, in the vicinity of the Project site, was found to accommodate approximately 6,570 vehicles on an average weekday (two-way, 24-hour volume), with approximately 684 vehicles per hour (vph) during the weekday morning peak-hour and 652 vph during the weekday evening peak-hour.

Pedestrian and Bicycle Facilities

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in May 2022. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadway and at the study intersections, as well as the location of existing and planned future bicycle facilities. As detailed on Figure 2, sidewalks are provided along the west side of Main Street, along the east side of South Common Street and along the south side of High Street east of South Common Street, with a marked crosswalk provided for crossing the High Street Extension leg of the Main Street/High Street/High Street Extension intersection.

Formal bicycle facilities are not provided within the study area; however, the study area roadways generally provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared traveled-way configuration (i.e., motor vehicles and bicyclists sharing the roadway).³

Public Transportation

Regularly scheduled public transportation services are not currently provided within the Town of Topsfield or in the immediate vicinity of the Project site. Prior to the COVID-19 pandemic, the Coach Company provided fixed-route bus service to Copley Square in Boston on the Boston Commuter route from the Topsfield Park-and-Ride, which is located at 16 Park Street, approximately 0.5 miles southwest from the Project site. This bus service has been suspended at this time.

Spot Speed Measurements

Vehicle travel speed measurements were performed on High Street in the vicinity of the Project site in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

**Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS**

	High Street	
	Eastbound	Westbound
Mean Travel Speed (mph)	30	21
85 th Percentile Speed (mph)	33	27
Posted Speed Limit (mph)	25	25

mph = miles per hour.

³A minimum combined travel lane and paved shoulder width of 14-feet is required to support bicycle travel in a shared traveled-way condition.



As can be seen in Table 3, the mean vehicle travel speed along High Street in the vicinity of the Project site was found to be 30 mph in the eastbound direction and 21 mph westbound. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 33 mph in the eastbound direction and 27 mph westbound, which is 2 to 8 mph above the posted speed limit at the Project site (25 mph). The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances and is often used in establishing posted speed limits.

Motor Vehicle Crash Data

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2015 through 2019, inclusive) to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, roadway and weather conditions, and day of occurrence, and is presented in Table 4.

As can be seen in Table 4, with the exception of the Main Street/High Street/High Street Extension intersection, the study area intersections were found to have experienced one (1) reported motor vehicle crashes per year over the five-year review period and were identified to have motor vehicle crash rates that are *below* both the MassDOT Statewide and District average crash rates for similar intersections for the MassDOT Highway Division District in which the intersections are located (District 4).

The Main Street/High Street/High Street Extension intersection was found to have experienced 17 reported motor vehicle crashes of the five-year review period, or an average of 3.4 crashes per year, the majority of which occurred on a weekday; during daylight; under clear weather conditions; and involved angle-type collisions that resulted in property damage only. The intersection was identified to have a motor vehicle crash rate that was *above* the MassDOT statewide and District average crash rates for similar intersections. As such, recommendations have been provided to advance safety-related improvements at this intersection (discussed in the *Recommendations* section of this assessment).

A review of the MassDOT statewide High Crash Location List indicated that there are no locations within the study area that are included on MassDOT's Highway Safety Improvement Program (HSIP) listing as a high crash location. In addition, no fatal motor vehicle crashes were reported to have occurred at the study area intersections over the five-year review period.

The detailed MassDOT Crash Rate Worksheets are attached.



Table 4
MOTOR VEHICLE CRASH DATA SUMMARY^a

	Main St./ High St./High St. Ext.	High St./East Common St.	High St./South Common St.
Traffic Control Type ^b	U	U	U
<i>Year:</i>			
2015	4	0	0
2016	2	0	1
2017	3	0	0
2018	3	1	0
<u>2019</u>	<u>5</u>	<u>0</u>	<u>0</u>
Total	17	1	1
Average	3.40	0.20	0.20
Crash Rate ^c	0.83	0.07	0.07
MassDOT Crash Rate: ^d	0.57/0.57	0.57/0.57	0.57/0.57
Significant? ^e	Yes	No	No
<i>Type:</i>			
Angle	14	0	1
Head-On	0	0	0
Rear-End	1	0	0
Rear-to-Rear	0	0	0
Sideswipe	1	1	0
Fixed Object	1	0	0
Pedestrian/Bicycle	0	0	0
<u>Unknown/Other</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	17	1	1
<i>Conditions:</i>			
Clear	9	1	0
Cloudy	5	0	1
Rain	1	0	0
Snow/Ice	2	0	0
<u>Not Reported/Other</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	17	1	1
<i>Lighting:</i>			
Daylight	15	1	0
Dawn/Dusk	0	0	0
Dark (Road Lit)	1	0	1
<u>Dark (Road Unlit)</u>	<u>1</u>	<u>0</u>	<u>0</u>
Total	17	1	1
<i>Day of Week:</i>			
Monday-Friday	12	0	1
Saturday	3	1	0
<u>Sunday</u>	<u>2</u>	<u>0</u>	<u>0</u>
Total	17	1	1
<i>Severity:</i>			
Property Damage Only	14	1	1
Non-fatal Injury	3	0	0
Fatalities	0	0	0
<u>Not Reported</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	17	1	1

^aSource: MassDOT Safety Management/Traffic Operations Unit records, 2015 through 2019.

^bTraffic Control Type: U = unsignalized.

^cCrash rate per million vehicles entering the intersection.

^dStatewide/District crash rate.

^eThe intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 4).



FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2029, which reflects a seven-year planning horizon consistent with MassDOT guidelines. Independent of the Project, traffic volumes on the roadway network in the year 2029 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2029 No-Build traffic volumes reflect 2029 Build traffic-volume conditions with the Project.

Future Traffic Growth

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Topsfield Planning Department was consulted in order to determine if there were any projects that would have an impact on future traffic volumes at the study intersections. Based on this consultation, the following projects were identified for inclusion in this assessment:

- ***Proposed Residential Development, 57 Perkins Row, Topsfield, Massachusetts.*** This project entails the construction of a 44-unit residential development to be located at 57 Perkins Row to the southeast of the Project site. Traffic volumes associated with this project within the study area of this assessment are expected to be relatively minor and would be reflected in the general background traffic growth rate (discussion follows).
- ***Proposed Residential Development, Perkins Row, Topsfield, Massachusetts.*** This project entails the construction of a residential development to be located off of Perkins Row, proximate to Route 97, to the southeast of the Project site. Traffic volumes associated with this project within the study area of this assessment are expected to be relatively minor and would be reflected in the general background traffic growth rate.
- ***Proposed Commercial Development, School Street, Topsfield, Massachusetts.*** This potential future project will entail the redevelopment of the former Highway Department garage located off School Street to the south of the Project site to accommodate a commercial use. At this time, no definitive plans or applications for the project have been submitted to the Town and, as such, this project has not been included in the future conditions traffic volumes.
- ***Proposed Mixed-Use Development, Routes 1 & 97, Topsfield, Massachusetts.*** This potential future project will entail the construction of a mixed-use development to be located proximate to the Route 1/Route 97 intersection to the southeast of the Project site. At this time, no definitive



plans or applications for the project have been submitted to the Town and, as such, this project has not been included in the future conditions traffic volumes.

No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located in Topsfield and Boxford were reviewed in order to determine general traffic growth trends in the area. This data indicates that annual traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 1.44 percent per year. In order to provide a prudent planning condition for the Project, a slightly higher 1.5 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The Town of Topsfield and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2029 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2029 No-Build condition peak-hour traffic volumes were developed by applying the 1.5 percent per year compounded annual background traffic growth rate to the 2022 Existing peak-hour traffic volumes. The resulting 2029 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 4.

Project-Generated Traffic

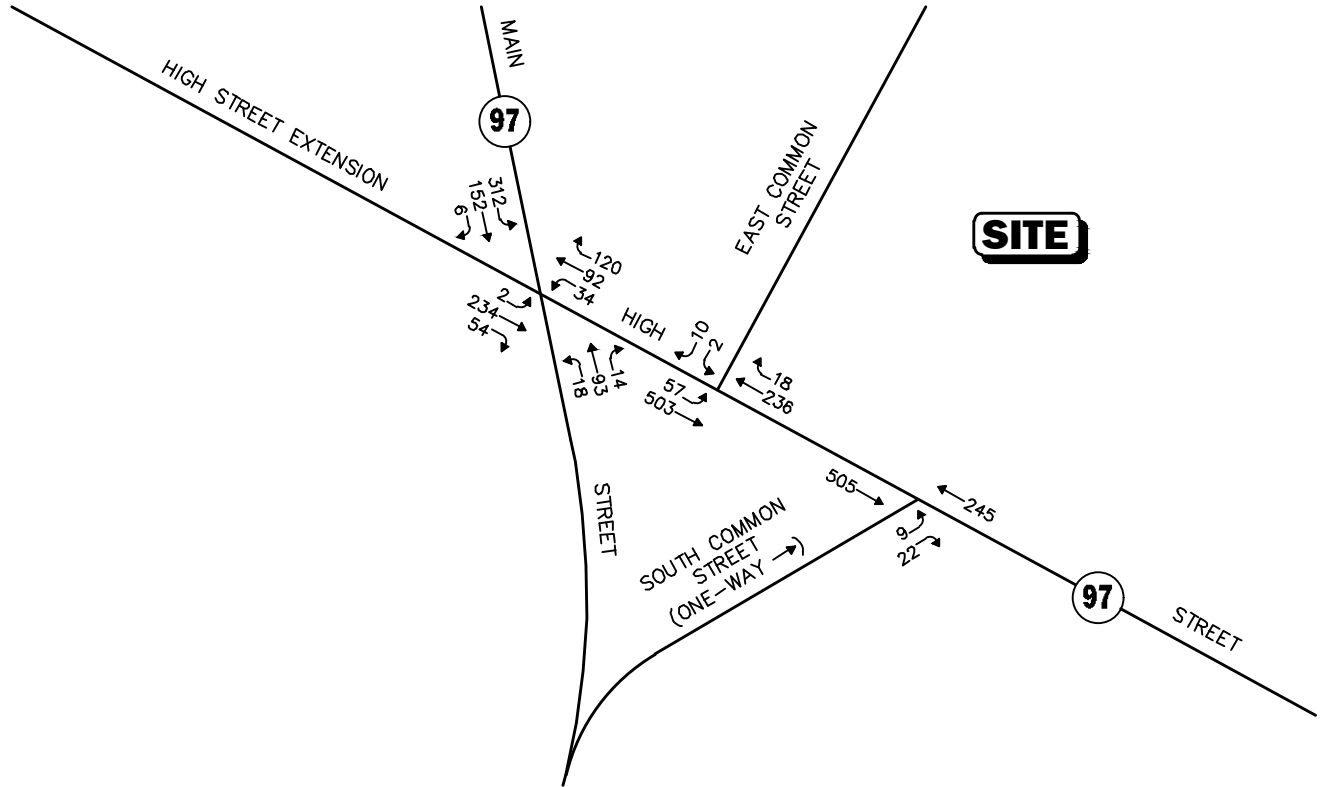
Design year (2029 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a 44± unit, age-qualified (age 55+) multifamily residential development. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE⁴ for a similar land use as that proposed were used. ITE Land Use Code (LUC) 252, *Senior Adult Housing – Multifamily*, was used to develop the traffic characteristics of the Project, the results of which are summarized in Table 5.

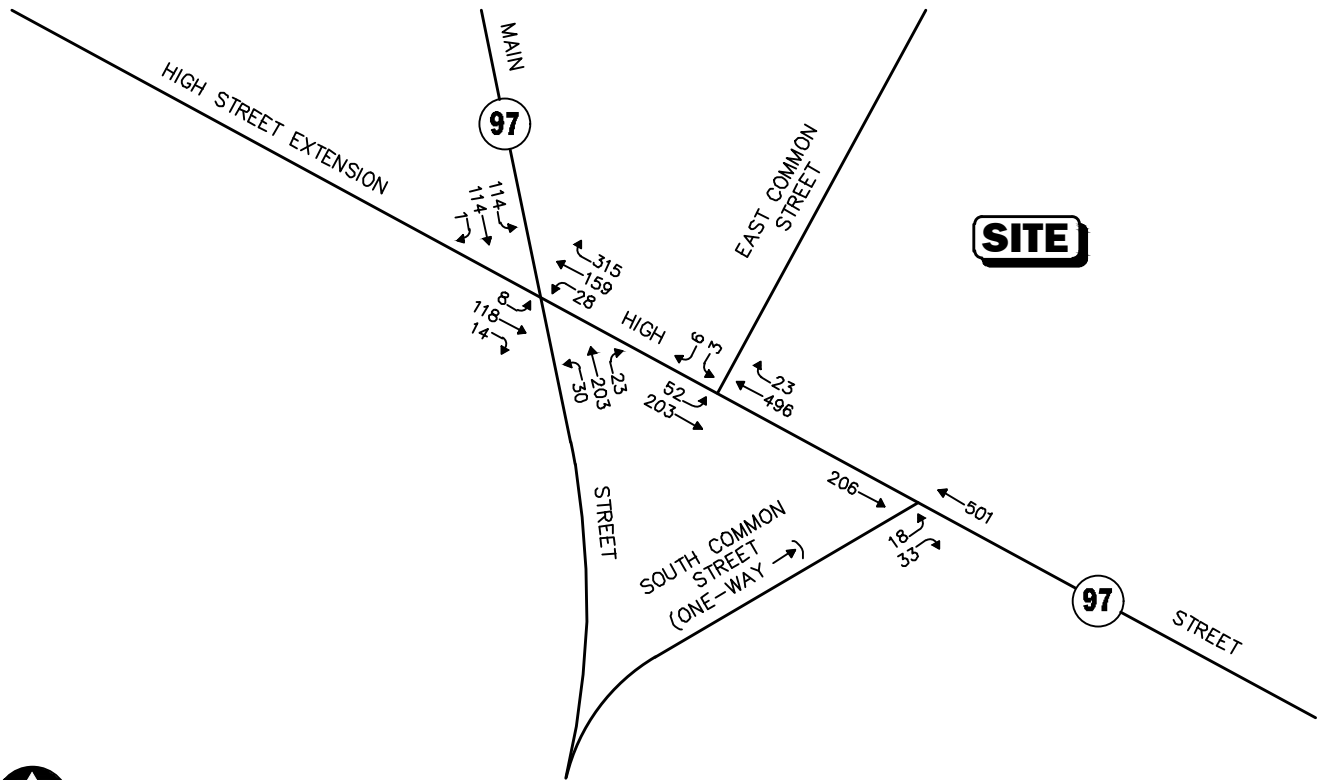
⁴Ibid 1.



WEEKDAY MORNING PEAK HOUR (7:45 TO 8:45 AM)



WEEKDAY EVENING PEAK HOUR (4:00 TO 5:00 PM)



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2029 No-Build Peak-Hour Traffic Volumes

Table 5
TRIP GENERATION SUMMARY

Time Period	Vehicle Trips ^a		
	Entering	Exiting	Total
<i>Average Weekday:</i>	72	72	144
<i>Weekday Morning Peak-Hour:</i>	3	6	9
<i>Weekday Evening Peak-Hour:</i>	6	5	11

^aBased on ITE LUC 252, *Senior Adult Housing - Multifamily*.

Project-Generated Traffic-Volume Summary

As can be seen in Table 5, the Project is expected to generate approximately 144 vehicle trips on an average weekday (two-way, 24-hour volume, or 72 vehicles entering and 72 exiting), with 9 vehicle trips (3 vehicles entering and 6 exiting) expected during the weekday morning peak-hour and 11 vehicle trips (6 vehicles entering and 5 exiting) expected during the weekday evening peak-hour.

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site was determined based on a review of U.S. Census Journey-to-Work data for the Town of Topsfield and then refined based on a review of existing traffic patterns within the study area. The general trip distribution for the Project is graphically depicted on Figure 5, with the additional traffic that is expected to be generated by the Project assigned on the study area roadway network as shown on Figure 6.

Build Traffic Volumes

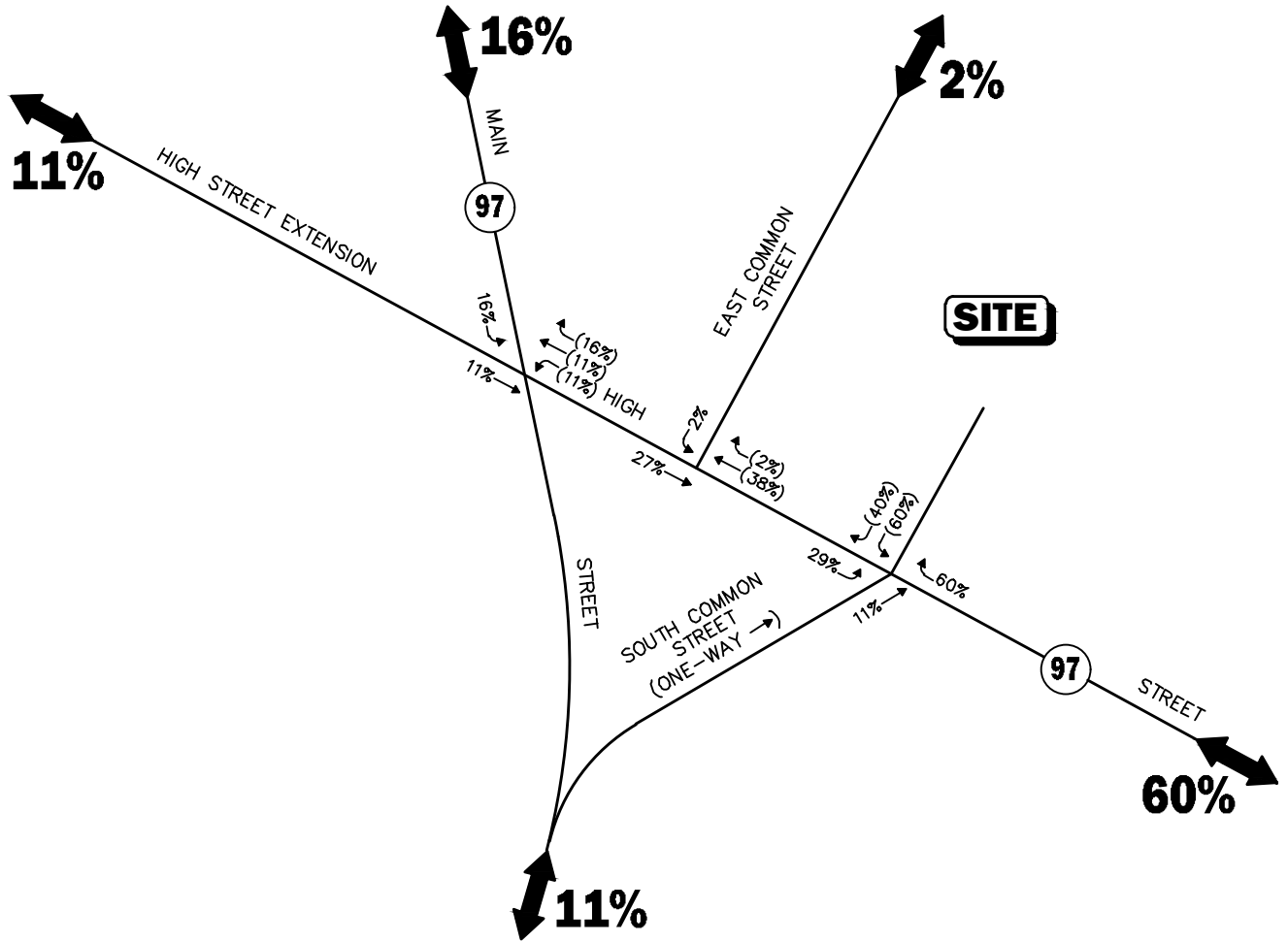
The 2029 Build condition traffic volumes consist of the 2029 No-Build traffic volumes with the addition of the traffic expected to be generated by the Project. The 2029 Build weekday morning and evening peak-hour traffic volumes are graphically depicted on Figure 7.

TRAFFIC OPERATIONS ANALYSIS

In order to assess the potential impact of the Project on the roadway network, a detailed traffic operations analysis (motorist delays, vehicle queuing, and level-of-service) was performed for the study intersection. Capacity analyses provide an indication of how well transportation facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from A to F, with LOS “A” representing the best operating conditions and LOS “F” representing congested or constrained operations. An LOS of “E” is representative of a transportation facility that is operating at its design capacity with an LOS of “D” generally defined as the limit of “acceptable” traffic operations. Since the level-of-service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro® intersection capacity analysis software, which is based on the analysis methodologies





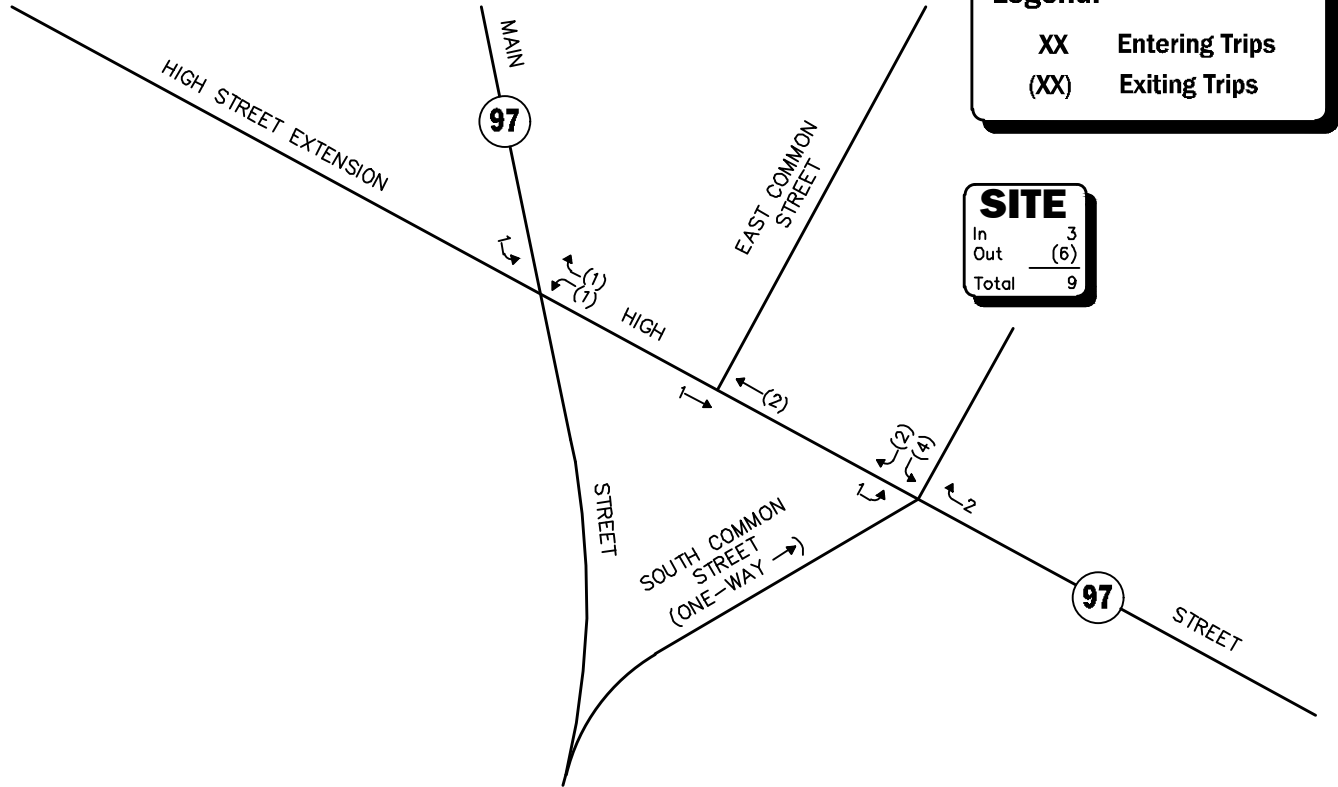
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Figure 5

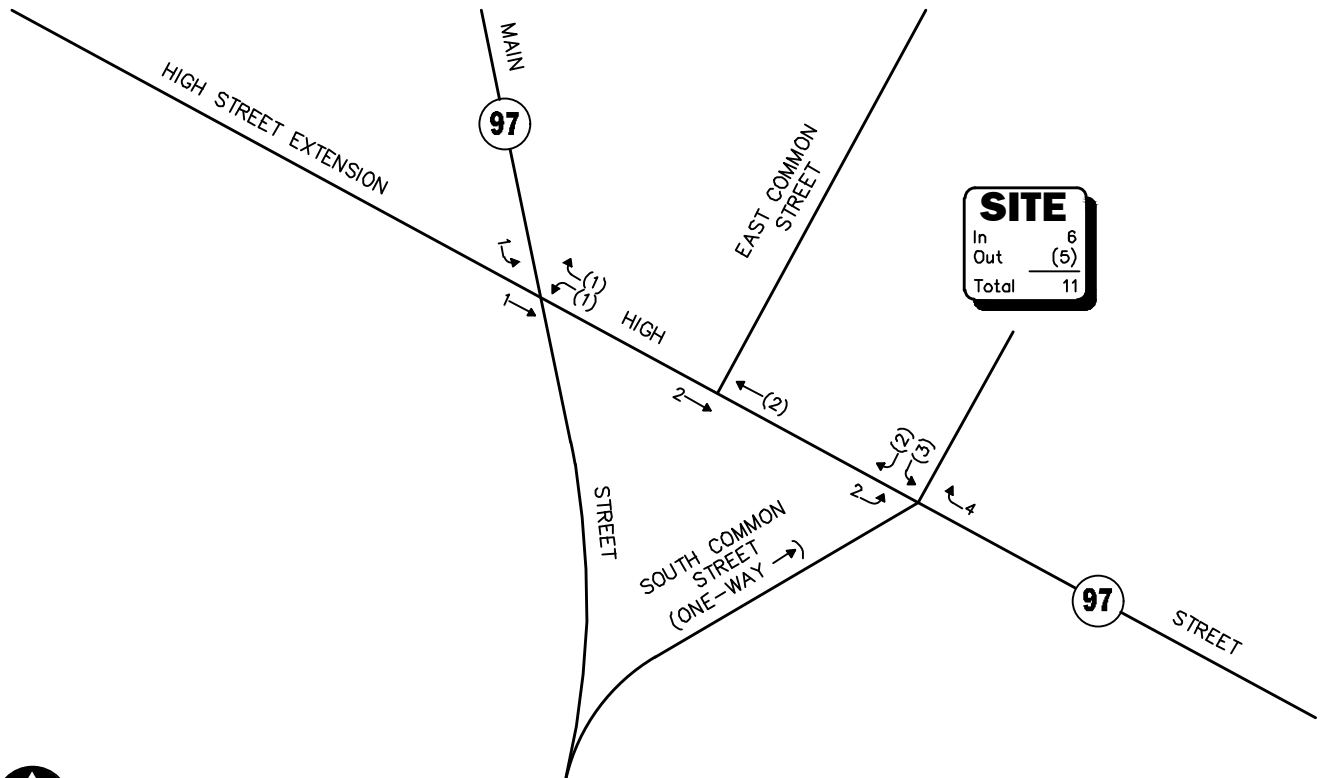
Trip Distribution Map



WEEKDAY MORNING PEAK HOUR (7:45 TO 8:45 AM)



WEEKDAY EVENING PEAK HOUR (4:00 TO 5:00 PM)



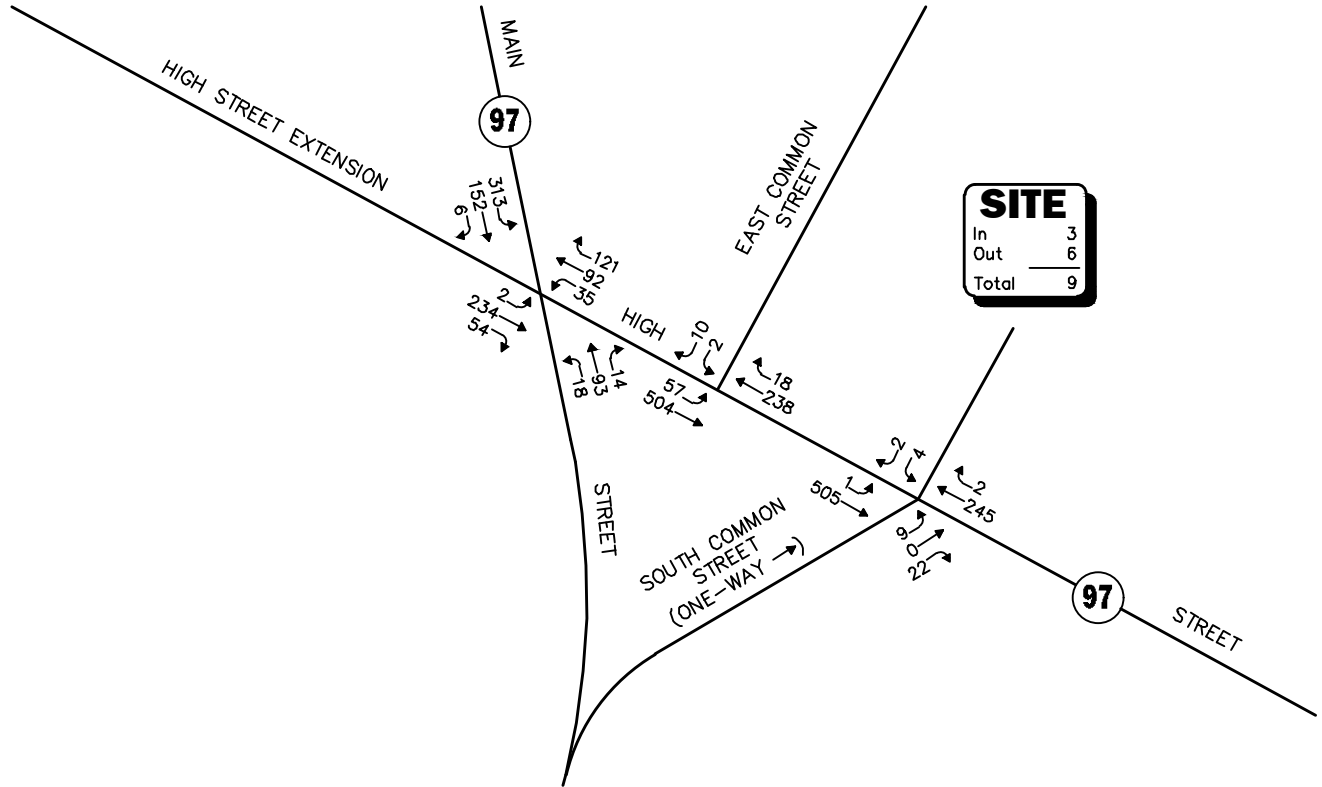
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Figure 6

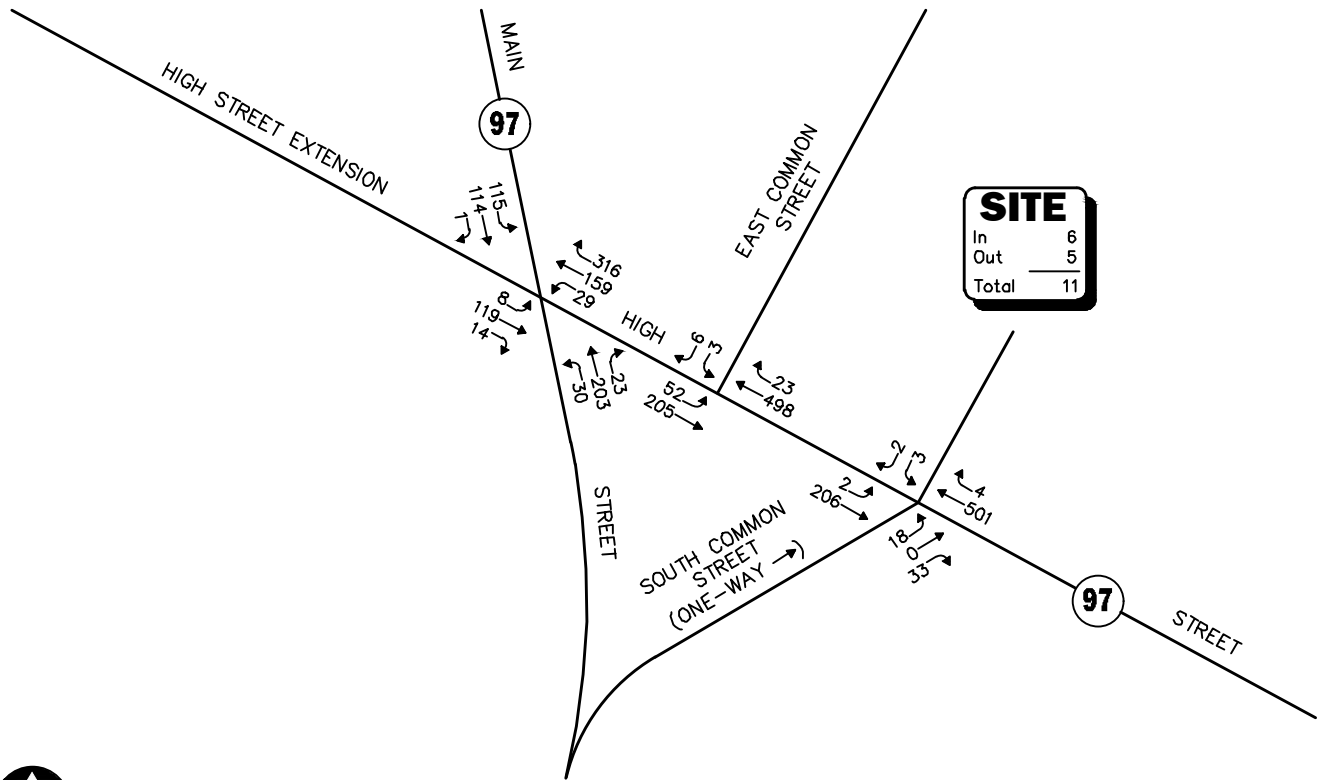
Project-Generated Peak-Hour Traffic Volumes



WEEKDAY MORNING PEAK HOUR (7:45 TO 8:45 AM)



WEEKDAY EVENING PEAK HOUR (4:00 TO 5:00 PM)



Not To Scale

Figure 7



2029 Build
Peak-Hour Traffic Volumes

and procedures presented in the 2010 *Highway Capacity Manual* (HCM)⁵ for unsignalized intersections, was used to complete the level-of-service and vehicle queue analyses.

Analysis Results

Level-of-service and vehicle queue analysis were conducted for 2022 Existing, 2029 No-Build, and 2029 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Table 6, with the detailed analysis results attached.

The following is a summary of the level-of-service and vehicle queue analyses for intersections within the study area. For context, we note that an LOS of “D” or better is generally defined as “acceptable” operating conditions.

Main Street at High Street and High Street Extension

The addition of Project-related traffic was shown to result in an increase in average motorist delay that resulted in a corresponding increase in vehicle queuing of up to two (2) vehicle. Independent of the Project, the High Street and High Street Extension approaches are currently or are predicted to operate at or over capacity (i.e., LOS “E” or LOS “F”) during the peak hours.

High Street at East Common Street

No changes in level of service or vehicle queuing is predicted to occur for any movement over No-Build conditions, with all movements continuing to operate at LOS B or better and Project-related impacts generally defined as an increase in average motorist delay of less than 1.0 seconds. That being said, actual operating conditions (motorist delays and vehicle queuing) will be directly related to vehicle queuing along High Street approaching Main Street.

High Street at South Common Street and Project Site Driveway

No changes in level-of-service or vehicle queuing is predicted to occur for any movement over No-Build conditions, with all movements shown to operate at LOS C or better and Project related impacts generally defined as an increase in average motorist delay of up to 1.0 seconds. All movements exiting the Project site driveway were shown to operate at LOS C during the peak hours with negligible vehicle queuing. Actual operating conditions at the intersection and delays for motorists exiting the Project site driveway will be directly related to vehicle queuing along High Street approaching Main Street.

⁵*Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2010.



Table 6
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak-Hour/Movement	2022 Existing				2029 No-Build				2029 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
Main Street at High Street and High Street Ext.												
<i>Weekday Morning:</i>												
High Street Ext. EB: LT/TH/RT	262	>50.0	F	29	290	>50.0	F	39	290	>50.0	F	39
High Street WB: LT/TH/RT	222	>50.0	F	9	246	>50.0	F	11	248	>50.0	F	13
Main Street NB: LT/TH/RT	113	1.1	A	0	125	1.1	A	0	125	1.1	A	0
Main Street SB: LT/TH/RT	422	5.4	A	1	470	5.5	A	1	471	5.5	A	1
<i>Weekday Evening:</i>												
High Street Ext. EB: LT/TH/RT	125	28.5	D	3	140	44.9	E	5	141	45.7	E	5
High Street WB: LT/TH/RT	452	>50.0	F	11	502	>50.0	F	19	504	>50.0	F	20
Main Street NB: LT/TH/RT	230	0.9	A	0	256	0.9	A	0	256	0.9	A	0
Main Street SB: LT/TH/RT	206	4.0	A	1	229	4.1	A	1	230	4.1	A	1
High Street at East Common Street												
<i>Weekday Morning:</i>												
High Street EB: LT/TH	504	0.8	A	0	560	0.8	A	0	561	0.8	A	0
High Street WB: TH/RT	229	0.0	A	0	254	0.0	A	0	254	0.0	A	0
East Common Street SB: LT/RT	11	11.4	B	0	12	11.8	B	0	12	11.9	B	0
<i>Weekday Evening:</i>												
High Street EB: LT/TH	229	1.7	A	0	255	1.8	A	0	257	1.8	A	0
High Street WB: TH/RT	467	0.0	A	0	519	0.0	A	0	521	0.0	A	0
East Common Street SB: LT/RT	8	13.1	B	0	9	13.8	B	0	9	13.8	B	0
High Street at South Common Street and the Project Site Driveway												
<i>Weekday Morning:</i>												
High Street EB: LT/TH	455	0	A	0	505	0.0	A	0	506	0.0	A	0
High Street WB: TH/RT	221	0	A	0	245	0.0	A	0	247	0.0	A	0
South Common Street NB: LT/TH/RT	27	13.9	B	1	31	15.1	C	1	31	16.1	C	1
Project Site Driveway SB: LT/RT	--	--	--	--	--	--	--	--	6	17.4	C	0
<i>Weekday Evening:</i>												
High Street EB: LT/TH	185	0	A	0	206	0.0	A	0	208	0.1	A	0
High Street WB: TH/RT	451	0	A	0	501	0.0	A	0	505	0.0	A	0
South Common Street NB: LT/TH/RT	46	11.7	B	1	51	12.4	B	1	51	13.3	B	1
Project Site Driveway SB: LT/RT	--	--	--	--	--	--	--	--	5	15.4	C	0

^aDemand in vehicles per hour.

^bAverage control delay per vehicle (in seconds).

^cLevel of service.

^dQueue length in vehicles.

NB = northbound, EB = eastbound; SB = southbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

N/A = not calculated.



SIGHT DISTANCE ASSESSMENT

Sight distance measurements were performed at the High Street/South Common Street/Project site driveway intersection in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)⁶ requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 7 presents the measured SSD and ISD at the subject intersection.

Table 7
SIGHT DISTANCE MEASUREMENTS^a

Intersection/Sight Distance Measurement	Feet		
	Required Minimum (SSD)	Desirable (ISD) ^b	Measured
<i>High Street at the Project Site driveway</i>			
<i>Stopping Sight Distance:</i>			
High Street approaching from the east	250	--	500+
High Street approaching from the west	250	--	300
<i>Intersection Sight Distance:</i>			
Looking to the east from Project driveway	250	335	293/500+ ^c
Looking to the west from Project driveway	250	390	300

^aRecommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on a 35 mph approach speed on High Street.

^bValues shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

^cAvailable sight distance with the selective trimming/removal of trees and vegetation located within the sight triangle area to the east of the Project site driveway along the north side of High Street.

As can be seen in Table 7, with the selective trimming/removal of trees and vegetation located within the sight triangle area of the Project site driveway, the available lines of sight to and from the Project site driveway intersection with High Street will exceed the recommended minimum sight distance to function in a safe manner (SSD) based on a 35 mph approach speed, which is above both the measured 85th percentile vehicle travel speed (27/33 mph) and the posted speed limit (25 mph) at the Project site driveway.

⁶*A Policy on Geometric Design of Highway and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.



SUMMARY

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed construction of an age-qualified residential development to be located at 10 High Street in Topsfield, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,⁷ the Project is expected to generate approximately 144 vehicle trips on an average weekday (two-way, 24-hour volume), with 9 vehicle trips expected during the weekday morning peak-hour and 11 vehicle trips expected during the weekday evening peak-hour;
2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), acknowledging that one or more movements at the study area intersections are currently operating or are predicted to operate at or over capacity (i.e., LOS “E” or “F”, respectively) independent of the Project;
3. All movements at the Project site driveway intersection with High Street are predicted to operate at LOS C with negligible vehicle queuing predicted, with actual operating conditions expected to be related to vehicle queuing on the High Street approach to Main Street;
4. Independent of the Project, the Main Street/High Street/High Street Extension intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections. As such, specific recommendations have been provided to advance safety-related improvements at the intersection;
5. Lines of sight at the Project site driveway intersection with High Street were found to exceed or can be made to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with the implementation of the recommendations that follow.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified as a part of this assessment. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

⁷Ibid 1.



Project Access

Access to the Project will be provided by way of a new driveway that will intersect the north side of High Street opposite South Common Street. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plans:

- The Project site driveway will be 22 feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.
- Where perpendicular parking is proposed the drive aisle behind the parking should be a minimum of 23 feet in order to facilitate parking maneuvers.
- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.
- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices (MUTCD)*.⁸
- A sidewalk has been provided along the Project site driveway that extends to High Street, where a marked crosswalk with Americans with Disabilities Act (ADA)-compliant wheelchair ramps and a pedestrian actuated rectangular rapid flashing beacon with accompanying pedestrian crossing warning signs should be installed for crossing High Street between the Project site and the sidewalk along South Common Street.
- ADA-compliant wheelchair ramps will be provided at pedestrian crossings within the Project.
- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site driveway should be designed and maintained so as not to restrict lines of sight.
- Snow accumulations (windrows) within sight triangle areas should be promptly removed where such accumulations would impede sight lines.
- Secure bicycle parking should be provided proximate to the residential building.

Off-Site

Main Street at High Street and High Street Extension

Independent of the Project, one or more movements at the Main Street/High Street/High Street Extension intersection are currently or are predicted to operate at or over capacity during the peak hours. Absent improvement, motorist delays are expected to further increase in the future, again, independent of the Project. In addition to and also independent of the Project, the intersection was identified to have a motor vehicle crash history that warrants further review and the advancement of specific improvements to enhance safety. In an effort to identify both safety and capacity improvements for this intersection, the Project proponent will facilitate the completion of a Road Safety Audit (RSA). The RSA will be completed prior to the issuance of a Certificate of Occupancy for the Project and can be used by the Town to support state grant applications for the implementation of the suggested improvements that will be an outcome of the RSA.

⁸*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.



Transportation Demand Management

Public transportation services are not currently provided within the study area or the Town of Topsfield. In an effort to encourage the use of alternative modes of transportation to single-occupant vehicles (SOVs), the follow Transportation Demand Management (TDM) measures will be implemented as part of the Project:

- A transportation coordinator will be assigned for the Project to coordinate the TDM program and serve as a point of contact with the Topsfield Council on Aging (COA);
- A “welcome packet” will be provided to residents detailing available transportation options;
- Pedestrian accommodations have been included within the Project site and consist of a sidewalk that will extend to High Street; and
- Secure bicycle parking will be provided for residents and visitors.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

cc: File



APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
TURNING MOVEMENT COUNT DATA
SEASONAL ADJUSTMENT DATA
COVID ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION
MAPPING
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP-GENERATION CALCULATIONS
JOURNEY-TO-WORK TRIP DISTRIBUTIONS
CAPACITY ANALYSIS WORKSHEETS



PROJECT SITE PLAN





PARKING CALCULATIONS				
UNIT TYPE	PARKING PER UNIT	UNIT QUANTITY	SPACES REQUIRED	TOTAL SPACES
2 BED	2	4	8	8
1 BED	1	38	38	38
STUDIO	1	2	2	2
TOTAL PARKING SPACES				48

Revisions:	
#	Date



5 Essex Green Drive
Suite 11A
Peabody, MA 01960
Phone: 978-965-3470

THE CALEB GROUP
10 High Street
Topsfield, MA 01983
PERMITTING

ARCHITECTURAL
SITE PLAN
Scale: As indicated
Date: 09/13/2022
Drawn By: DMS Team

A1.00

AUTOMATIC TRAFFIC RECORDER COUNT DATA



Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA

93610001

5/4/2022 Time	WB,		Hour Totals		EB,		Hour Totals		Combined Totals	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	43			0	49				
12:15	1	41			0	42				
12:30	1	54			0	45				
12:45	0	51	3	189	1	46	1	182	4	371
1:00	1	40			0	28				
1:15	1	53			2	44				
1:30	0	28			0	47				
1:45	0	42	2	163	3	40	5	159	7	322
2:00	0	62			0	32				
2:15	1	49			1	51				
2:30	0	57			1	53				
2:45	0	82	1	250	0	44	2	180	3	430
3:00	1	78			0	36				
3:15	3	104			2	62				
3:30	2	96			1	45				
3:45	2	114	8	392	2	41	5	184	13	576
4:00	1	109			2	41				
4:15	0	102			4	51				
4:30	0	100			7	47				
4:45	0	110	1	421	7	41	20	180	21	601
5:00	2	86			7	47				
5:15	2	103			9	50				
5:30	3	94			18	54				
5:45	7	74	14	357	24	40	58	191	72	548
6:00	12	53			36	48				
6:15	17	56			52	14				
6:30	31	39			75	19				
6:45	17	32	77	180	81	13	244	94	321	274
7:00	25	31			104	13				
7:15	50	26			121	14				
7:30	34	32			129	15				
7:45	51	25	160	114	102	17	456	59	616	173
8:00	65	14			93	15				
8:15	58	13			86	8				
8:30	64	19			96	19				
8:45	43	9	230	55	80	7	355	49	585	104
9:00	54	11			55	12				
9:15	47	13			53	9				
9:30	41	11			38	7				
9:45	42	6	184	41	33	3	179	31	363	72
10:00	33	4			41	3				
10:15	39	9			51	5				
10:30	22	11			40	4				
10:45	44	4	138	28	43	3	175	15	313	43
11:00	38	3			23	2				
11:15	31	5			33	0				
11:30	28	2			28	2				
11:45	33	1	130	11	39	1	123	5	253	16
Total	948	2201			1623	1329			2571	3530
Percent	30.1%	69.9%			55.0%	45.0%			42.1%	57.9%

Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA

93610001

5/5/2022 Time	WB,		Hour Totals		EB,		Hour Totals		Combined Totals	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	3	35			0	44				
12:15	2	45			0	51				
12:30	1	47			1	50				
12:45	2	52	8	179	1	46	2	191	10	370
1:00	3	50			1	25				
1:15	1	44			0	46				
1:30	0	52			0	56				
1:45	1	46	5	192	1	37	2	164	7	356
2:00	1	57			0	50				
2:15	1	63			2	60				
2:30	1	74			0	54				
2:45	0	79	3	273	0	41	2	205	5	478
3:00	2	94			0	62				
3:15	2	106			0	59				
3:30	1	97			1	44				
3:45	1	100	6	397	2	57	3	222	9	619
4:00	0	106			3	56				
4:15	1	109			6	62				
4:30	1	120			6	63				
4:45	2	113	4	448	9	53	24	234	28	682
5:00	2	103			5	50				
5:15	1	115			11	53				
5:30	5	106			21	47				
5:45	7	82	15	406	30	63	67	213	82	619
6:00	11	58			30	49				
6:15	11	62			58	47				
6:30	21	52			96	25				
6:45	26	43	69	215	76	24	260	145	329	360
7:00	44	36			93	25				
7:15	39	29			108	22				
7:30	57	35			130	20				
7:45	56	33	196	133	117	17	448	84	644	217
8:00	55	30			99	19				
8:15	57	30			83	10				
8:30	60	23			94	18				
8:45	40	22	212	105	70	15	346	62	558	167
9:00	42	14			55	7				
9:15	39	16			43	9				
9:30	42	11			49	8				
9:45	35	10	158	51	42	9	189	33	347	84
10:00	39	8			52	6				
10:15	42	13			38	7				
10:30	45	10			37	3				
10:45	42	7	168	38	46	8	173	24	341	62
11:00	37	8			37	2				
11:15	44	12			41	4				
11:30	40	4			44	2				
11:45	44	1	165	25	42	1	164	9	329	34
Total	1009	2462			1680	1586			2689	4048
Percent	29.1%	70.9%			51.4%	48.6%			39.9%	60.1%
Grand Total	1957	4663			3303	2915			5260	7578
Percent	29.6%	70.4%			53.1%	46.9%			41.0%	59.0%
ADT		ADT: 6,419		AADT: 6,419						

TURNING MOVEMENT COUNT DATA



Accurate Counts

978-664-2565

N/S Street : South Common Street
 E/W Street : High Street
 City/State : Topsfield, MA
 Weather : Rain

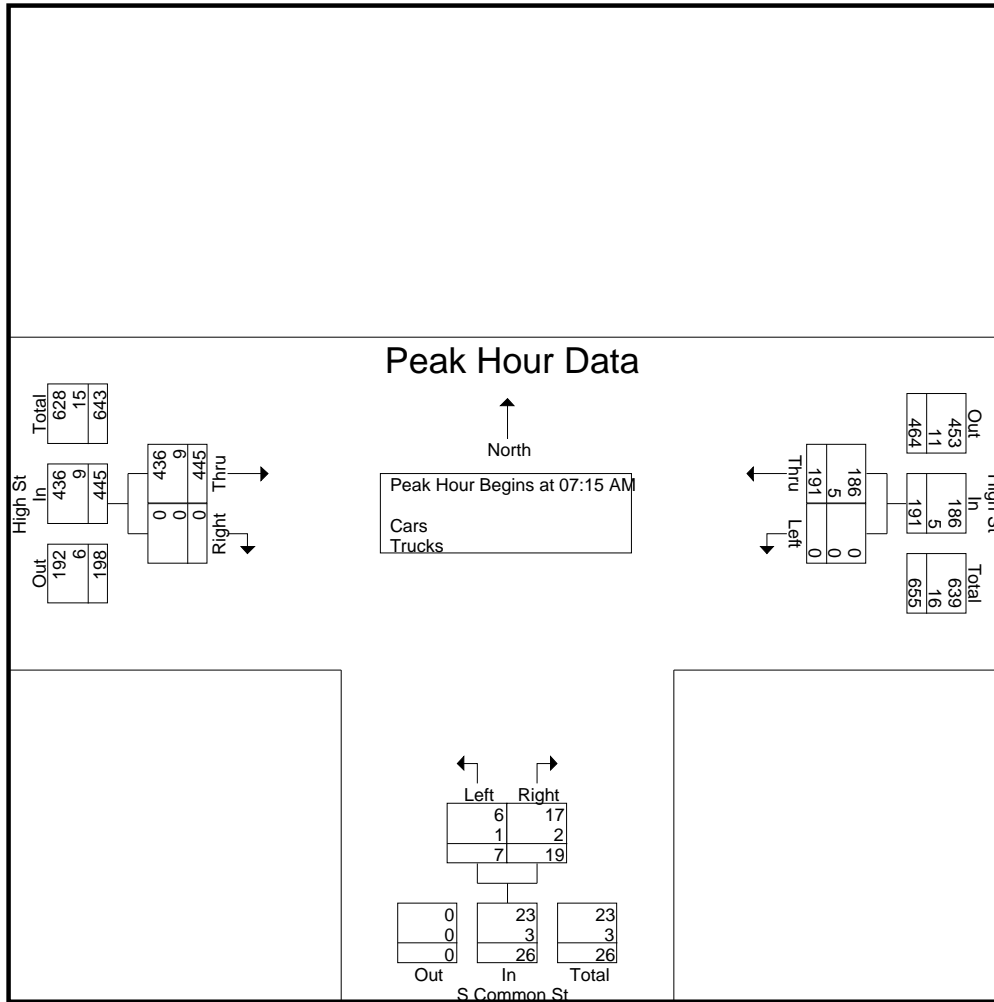
File Name : 93610001
 Site Code : 93610001
 Start Date : 5/4/2022
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	High St From East		S Common St From South			High St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right		
07:00 AM	0	26	0	2	104	0	132	
07:15 AM	0	47	3	9	121	0	180	
07:30 AM	0	31	2	3	128	0	164	
07:45 AM	0	51	1	5	103	0	160	
Total	0	155	6	19	456	0	636	
08:00 AM	0	62	1	2	93	0	158	
08:15 AM	0	56	3	3	87	0	149	
08:30 AM	0	56	4	11	98	0	169	
08:45 AM	0	43	1	5	79	0	128	
Total	0	217	9	21	357	0	604	
Grand Total	0	372	15	40	813	0	1240	
Apprch %	0	100	27.3	72.7	100	0		
Total %	0	30	1.2	3.2	65.6	0		
Cars	0	359	10	38	796	0	1203	
% Cars	0	96.5	66.7	95	97.9	0	97	
Trucks	0	13	5	2	17	0	37	
% Trucks	0	3.5	33.3	5	2.1	0	3	

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	47	47	3	9	12	121	0	121	180
07:30 AM	0	31	31	2	3	5	128	0	128	164
07:45 AM	0	51	51	1	5	6	103	0	103	160
08:00 AM	0	62	62	1	2	3	93	0	93	158
Total Volume	0	191	191	7	19	26	445	0	445	662
% App. Total	0	100		26.9	73.1		100	0		
PHF	.000	.770	.770	.583	.528	.542	.869	.000	.869	.919
Cars	0	186	186	6	17	23	436	0	436	645
% Cars	0	97.4	97.4	85.7	89.5	88.5	98.0	0	98.0	97.4
Trucks	0	5	5	1	2	3	9	0	9	17
% Trucks	0	2.6	2.6	14.3	10.5	11.5	2.0	0	2.0	2.6

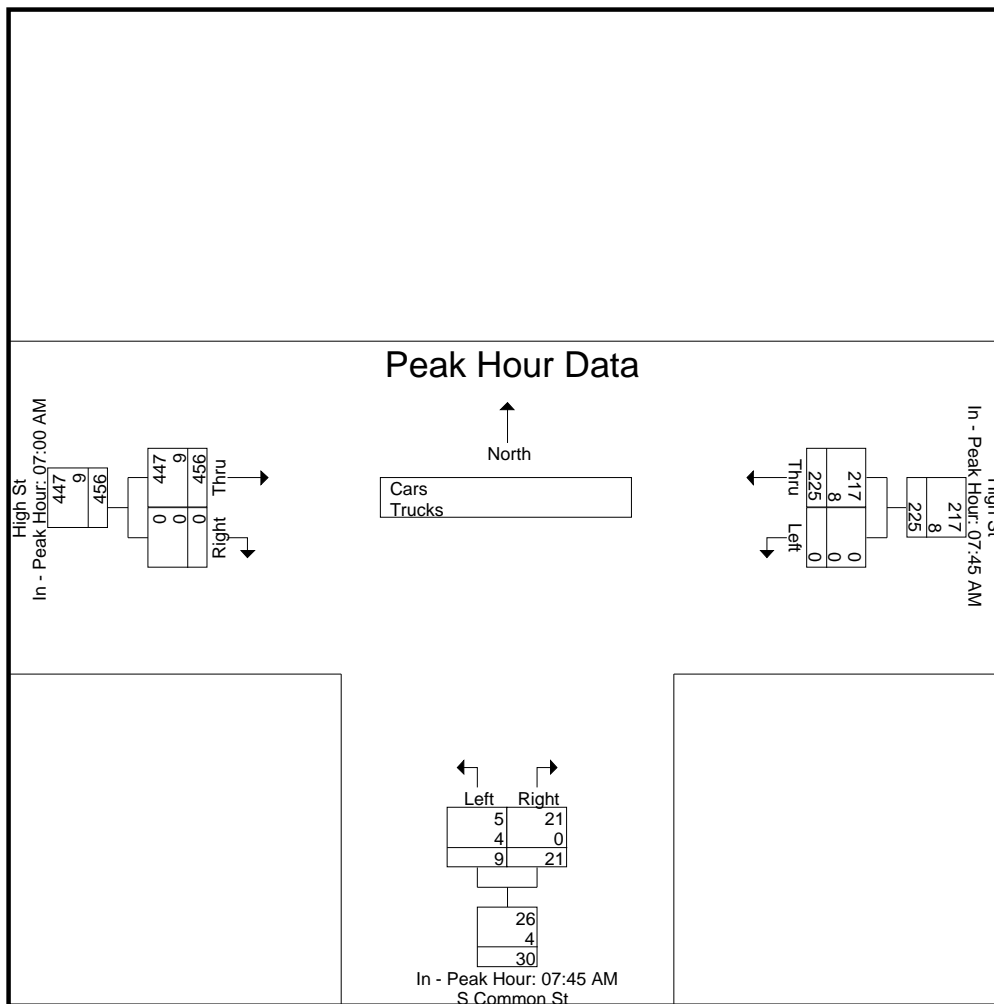
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:00 AM		
+0 mins.	0	51	51	1	5	6	104	0	104
+15 mins.	0	62	62	1	2	3	121	0	121
+30 mins.	0	56	56	3	3	6	128	0	128
+45 mins.	0	56	56	4	11	15	103	0	103
Total Volume	0	225	225	9	21	30	456	0	456
% App. Total	0	100		30	70		100	0	
PHF	.000	.907	.907	.563	.477	.500	.891	.000	.891
Cars	0	217	217	5	21	26	447	0	447
% Cars	0	96.4	96.4	55.6	100	86.7	98	0	98
Trucks	0	8	8	4	0	4	9	0	9
% Trucks	0	3.6	3.6	44.4	0	13.3	2	0	2

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain

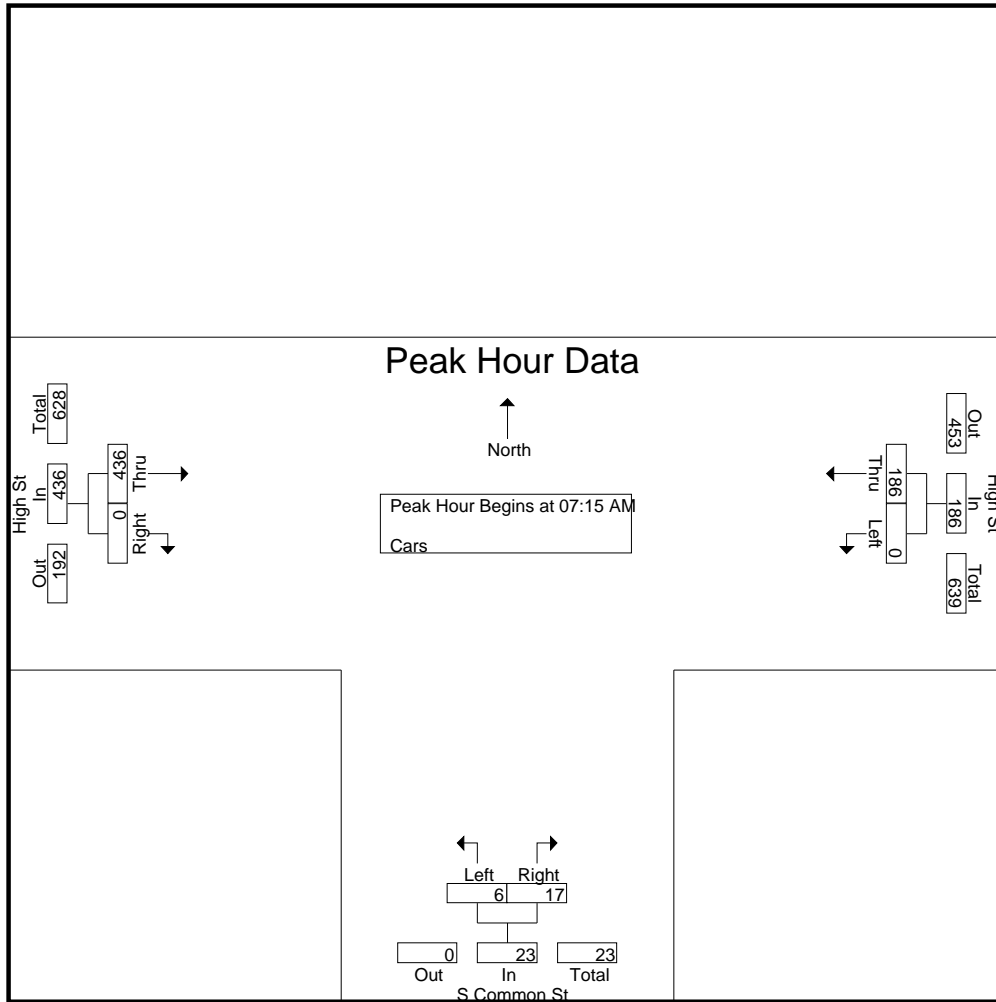
File Name : 93610001
Site Code : 93610001
Start Date : 5/4/2022
Page No : 4

Groups Printed- Cars

Start Time	High St From East		S Common St From South		High St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	23	0	2	104	0	129
07:15 AM	0	47	2	7	116	0	172
07:30 AM	0	30	2	3	125	0	160
07:45 AM	0	50	1	5	102	0	158
Total	0	150	5	17	447	0	619
08:00 AM	0	59	1	2	93	0	155
08:15 AM	0	54	3	3	86	0	146
08:30 AM	0	54	0	11	97	0	162
08:45 AM	0	42	1	5	73	0	121
Total	0	209	5	21	349	0	584
Grand Total	0	359	10	38	796	0	1203
Apprch %	0	100	20.8	79.2	100	0	
Total %	0	29.8	0.8	3.2	66.2	0	

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	47	47	2	7	9	116	0	116	172
07:30 AM	0	30	30	2	3	5	125	0	125	160
07:45 AM	0	50	50	1	5	6	102	0	102	158
08:00 AM	0	59	59	1	2	3	93	0	93	155
Total Volume	0	186	186	6	17	23	436	0	436	645
% App. Total	0	100		26.1	73.9		100	0		
PHF	.000	.788	.788	.750	.607	.639	.872	.000	.872	.938

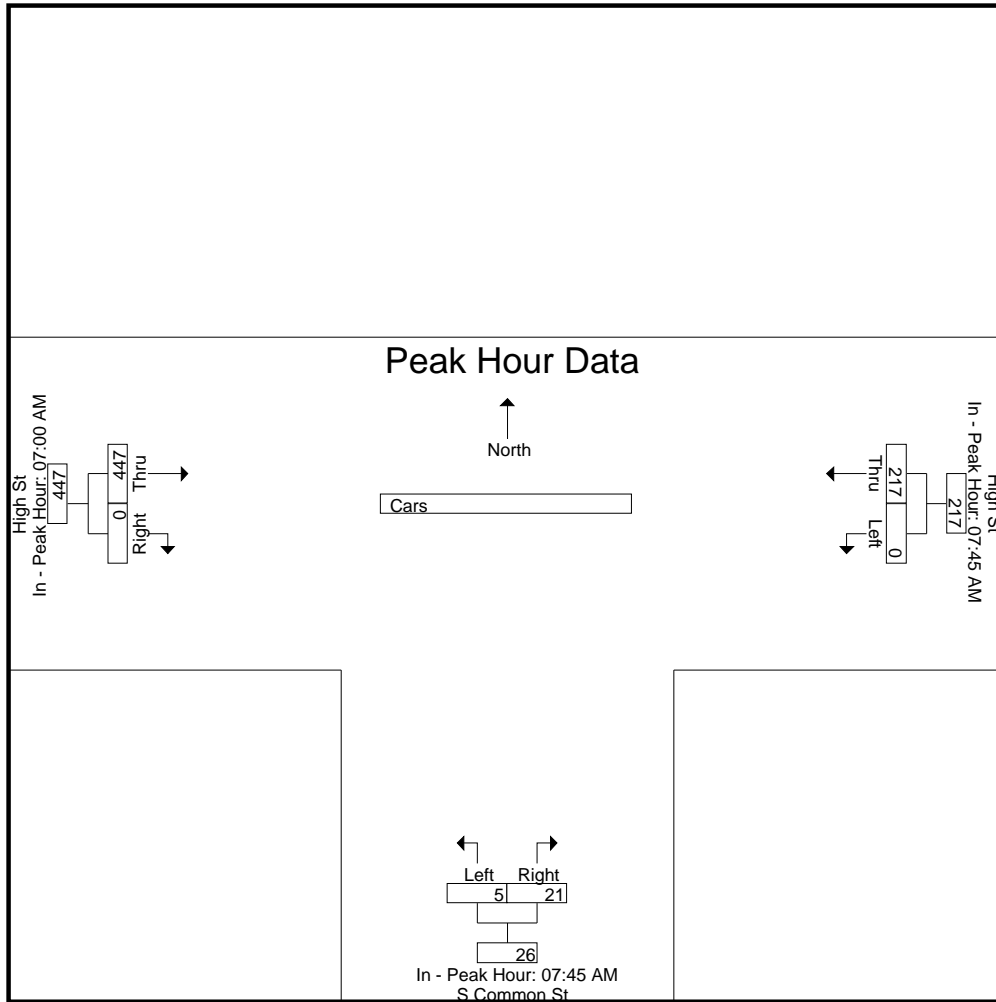
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:00 AM		
+0 mins.	0	50	50	1	5	6	104	0	104
+15 mins.	0	59	59	1	2	3	116	0	116
+30 mins.	0	54	54	3	3	6	125	0	125
+45 mins.	0	54	54	0	11	11	102	0	102
Total Volume	0	217	217	5	21	26	447	0	447
% App. Total	0	100		19.2	80.8		100	0	
PHF	.000	.919	.919	.417	.477	.591	.894	.000	.894

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts

978-664-2565

N/S Street : South Common Street
 E/W Street : High Street
 City/State : Topsfield, MA
 Weather : Rain

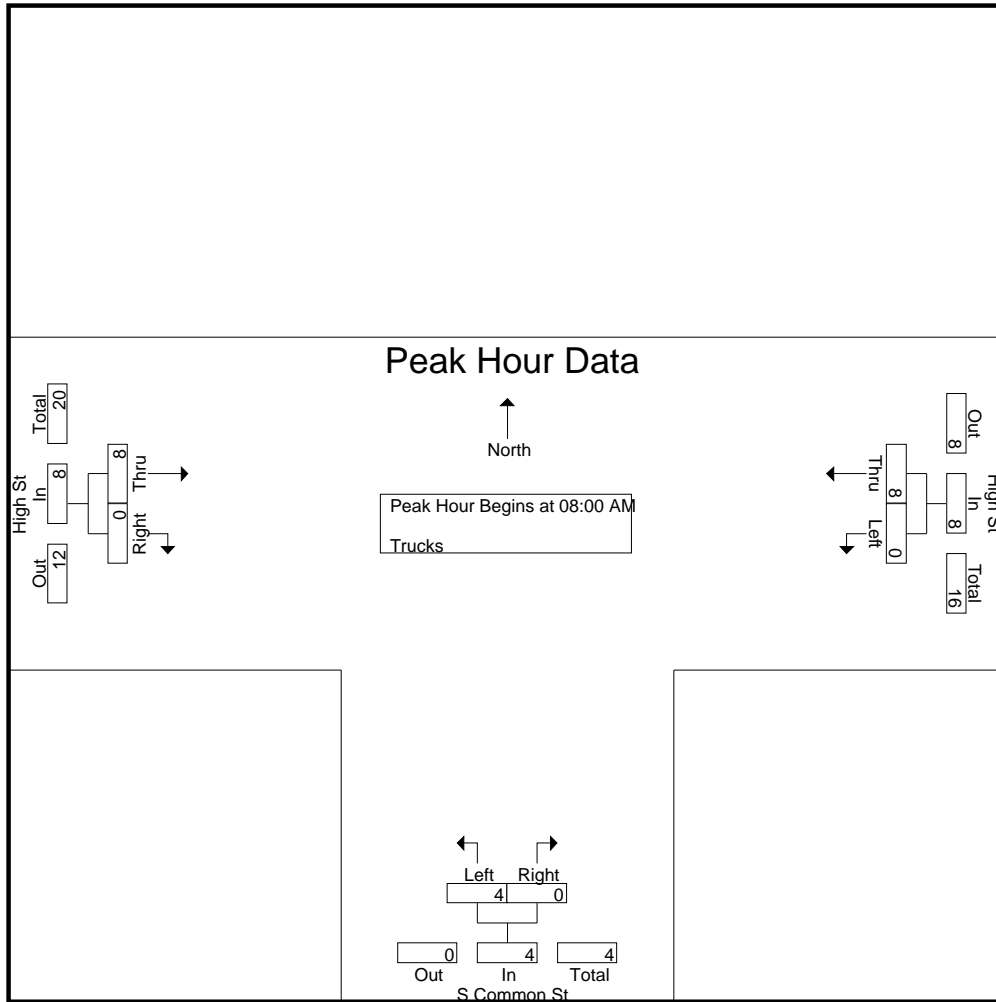
File Name : 93610001
 Site Code : 93610001
 Start Date : 5/4/2022
 Page No : 7

Groups Printed- Trucks

Start Time	High St From East		S Common St From South		High St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	3	0	0	0	0	3
07:15 AM	0	0	1	2	5	0	8
07:30 AM	0	1	0	0	3	0	4
07:45 AM	0	1	0	0	1	0	2
Total	0	5	1	2	9	0	17
08:00 AM	0	3	0	0	0	0	3
08:15 AM	0	2	0	0	1	0	3
08:30 AM	0	2	4	0	1	0	7
08:45 AM	0	1	0	0	6	0	7
Total	0	8	4	0	8	0	20
Grand Total	0	13	5	2	17	0	37
Apprch %	0	100	71.4	28.6	100	0	
Total %	0	35.1	13.5	5.4	45.9	0	

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	3	3	0	0	0	0	0	0	3
08:15 AM	0	2	2	0	0	0	1	0	1	3
08:30 AM	0	2	2	4	0	4	1	0	1	7
08:45 AM	0	1	1	0	0	0	6	0	6	7
Total Volume	0	8	8	4	0	4	8	0	8	20
% App. Total	0	100		100	0		100	0		
PHF	.000	.667	.667	.250	.000	.250	.333	.000	.333	.714

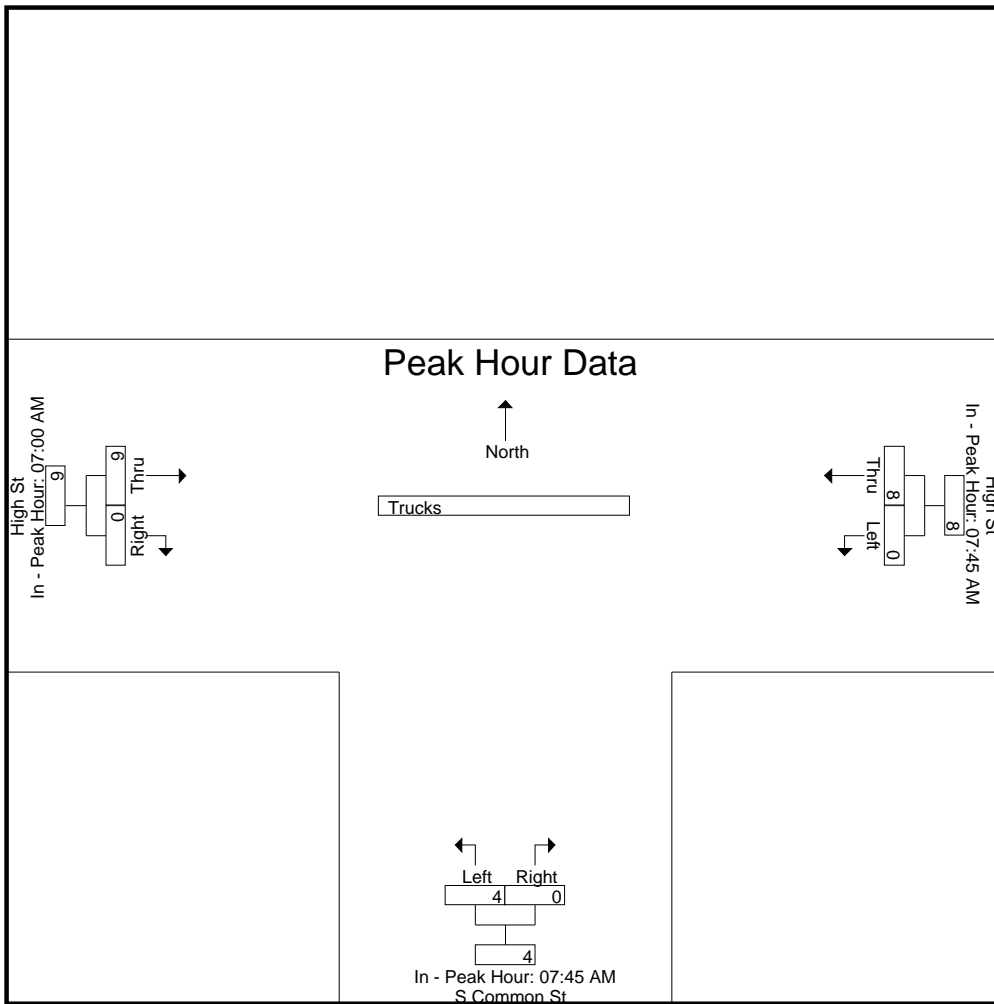
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



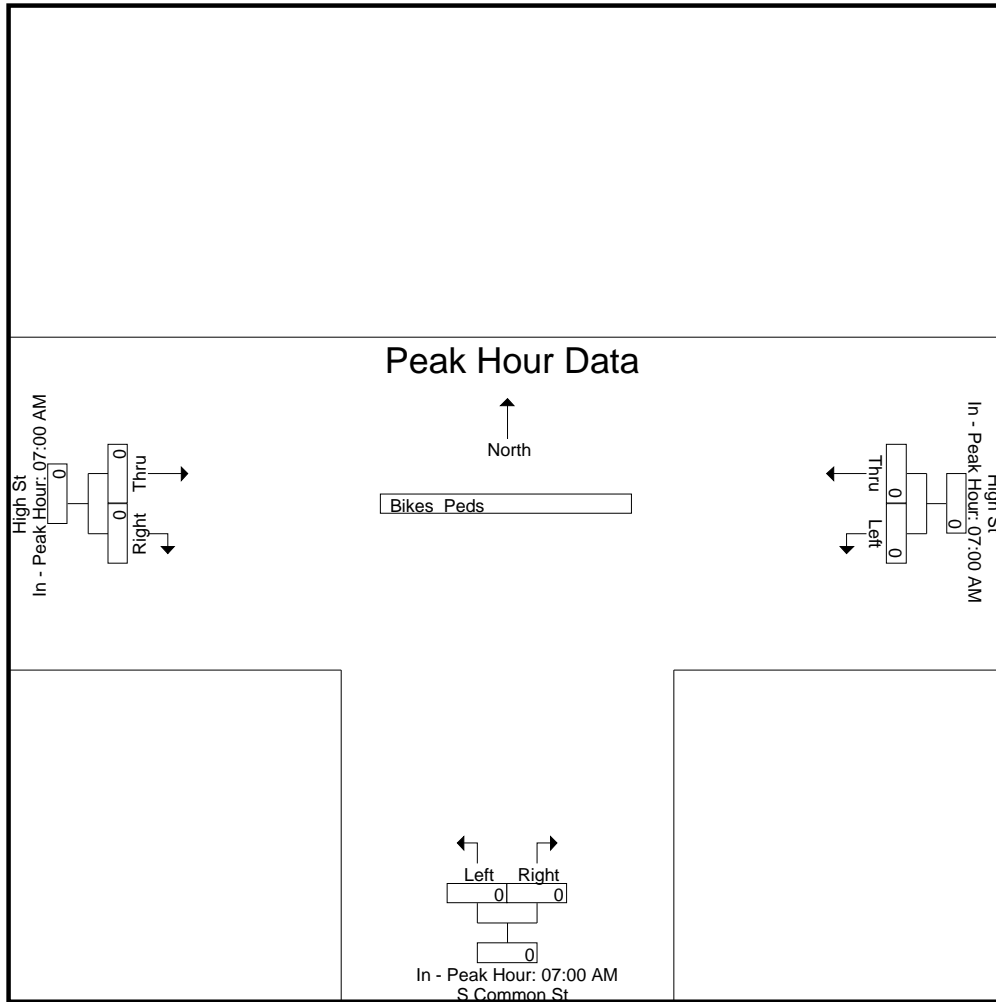
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:00 AM		
+0 mins.	0	1	1	0	0	0	0	0	0
+15 mins.	0	3	3	0	0	0	5	0	5
+30 mins.	0	2	2	0	0	0	3	0	3
+45 mins.	0	2	2	4	0	4	1	0	1
Total Volume	0	8	8	4	0	4	9	0	9
% App. Total	0	100		100	0		100	0	
PHF	.000	.667	.667	.250	.000	.250	.450	.000	.450

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts

978-664-2565

N/S Street : South Common Street
 E/W Street : High Street
 City/State : Topsfield, MA
 Weather : Rain

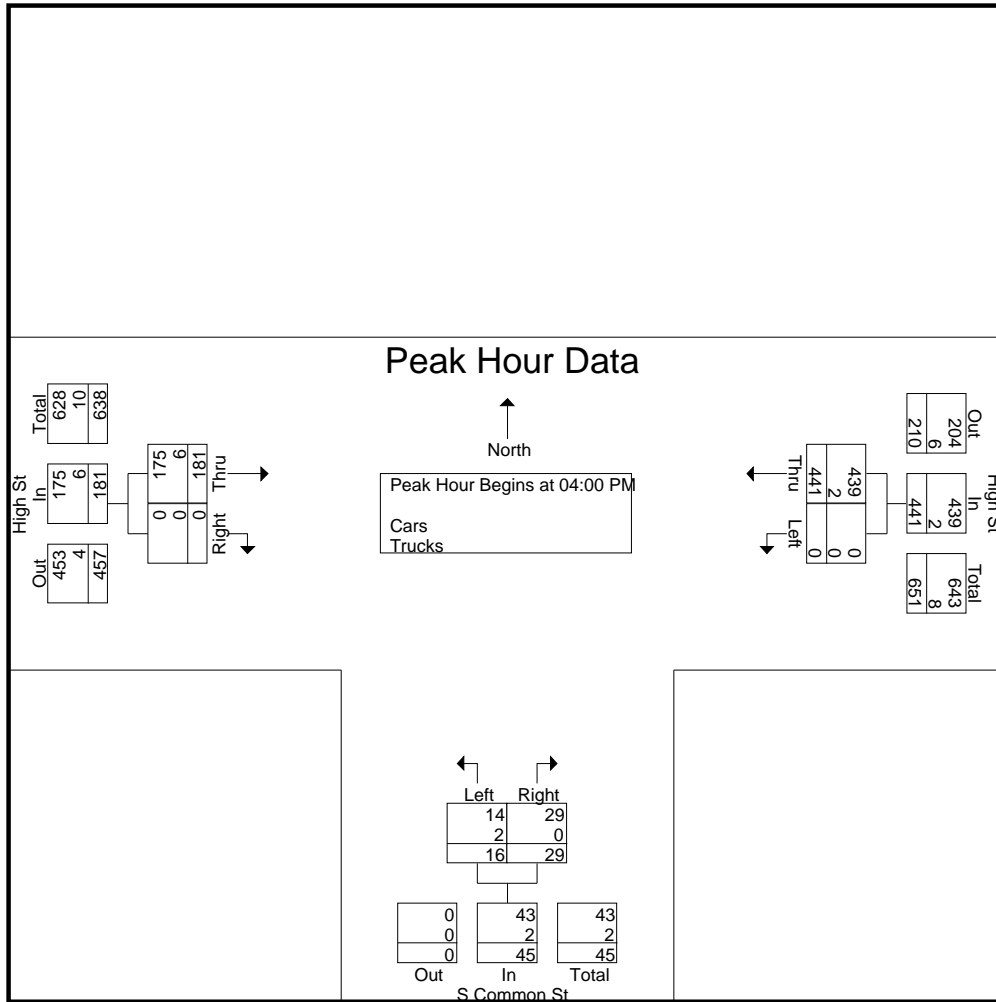
File Name : 93610001
 Site Code : 93610001
 Start Date : 5/4/2022
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	High St From East		S Common St From South			High St From West			Int. Total
	Left	Thru	Left	Right	Thru	Right			
04:00 PM	0	111	4	6	40	0	161		
04:15 PM	0	108	3	6	52	0	169		
04:30 PM	0	105	6	4	48	0	163		
04:45 PM	0	117	3	13	41	0	174		
Total	0	441	16	29	181	0	667		
05:00 PM	0	88	1	9	46	0	144		
05:15 PM	0	116	1	7	49	0	173		
05:30 PM	0	102	2	1	54	0	159		
05:45 PM	0	78	0	5	40	0	123		
Total	0	384	4	22	189	0	599		
Grand Total	0	825	20	51	370	0	1266		
Apprch %	0	100	28.2	71.8	100	0			
Total %	0	65.2	1.6	4	29.2	0			
Cars	0	822	18	51	363	0	1254		
% Cars	0	99.6	90	100	98.1	0	99.1		
Trucks	0	3	2	0	7	0	12		
% Trucks	0	0.4	10	0	1.9	0	0.9		

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	111	111	4	6	10	40	0	40	161
04:15 PM	0	108	108	3	6	9	52	0	52	169
04:30 PM	0	105	105	6	4	10	48	0	48	163
04:45 PM	0	117	117	3	13	16	41	0	41	174
Total Volume	0	441	441	16	29	45	181	0	181	667
% App. Total	0	100		35.6	64.4		100	0		
PHF	.000	.942	.942	.667	.558	.703	.870	.000	.870	.958
Cars	0	439	439	14	29	43	175	0	175	657
% Cars	0	99.5	99.5	87.5	100	95.6	96.7	0	96.7	98.5
Trucks	0	2	2	2	0	2	6	0	6	10
% Trucks	0	0.5	0.5	12.5	0	4.4	3.3	0	3.3	1.5

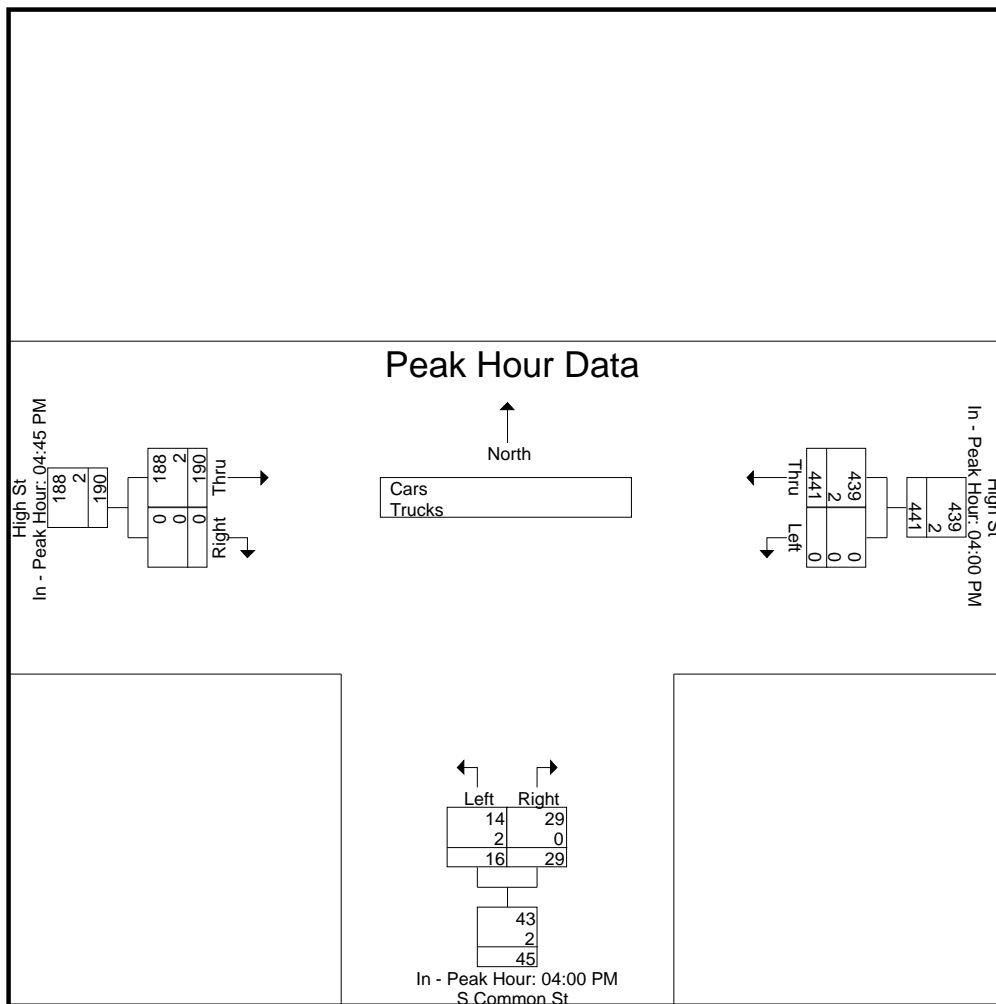
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:45 PM		
+0 mins.	0	111	111	4	6	10	41	0	41
+15 mins.	0	108	108	3	6	9	46	0	46
+30 mins.	0	105	105	6	4	10	49	0	49
+45 mins.	0	117	117	3	13	16	54	0	54
Total Volume	0	441	441	16	29	45	190	0	190
% App. Total	0	100		35.6	64.4		100	0	
PHF	.000	.942	.942	.667	.558	.703	.880	.000	.880
Cars	0	439	439	14	29	43	188	0	188
% Cars	0	99.5	99.5	87.5	100	95.6	98.9	0	98.9
Trucks	0	2	2	2	0	2	2	0	2
% Trucks	0	0.5	0.5	12.5	0	4.4	1.1	0	1.1

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts

978-664-2565

N/S Street : South Common Street
 E/W Street : High Street
 City/State : Topsfield, MA
 Weather : Rain

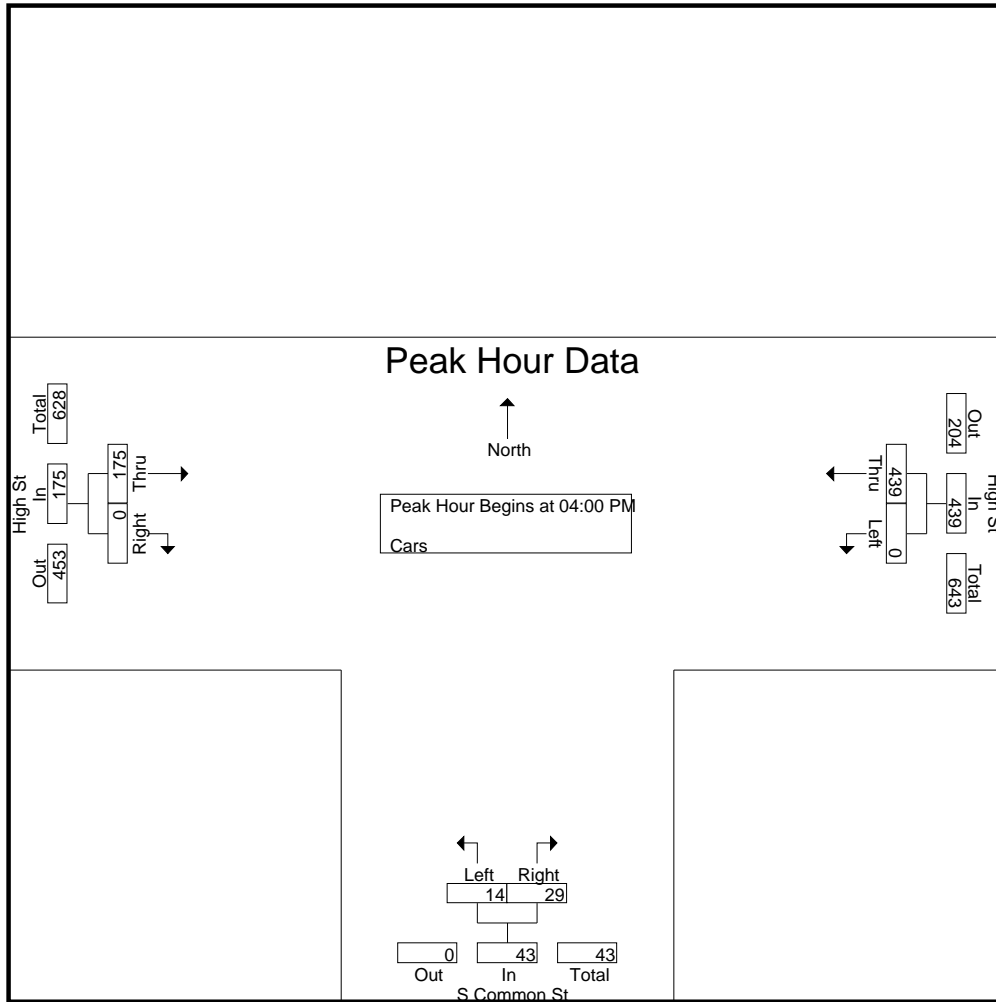
File Name : 93610001
 Site Code : 93610001
 Start Date : 5/4/2022
 Page No : 4

Groups Printed- Cars

Start Time	High St From East		S Common St From South		High St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	111	4	6	37	0	158
04:15 PM	0	108	3	6	50	0	167
04:30 PM	0	105	5	4	48	0	162
04:45 PM	0	115	2	13	40	0	170
Total	0	439	14	29	175	0	657
05:00 PM	0	87	1	9	46	0	143
05:15 PM	0	116	1	7	48	0	172
05:30 PM	0	102	2	1	54	0	159
05:45 PM	0	78	0	5	40	0	123
Total	0	383	4	22	188	0	597
Grand Total	0	822	18	51	363	0	1254
Apprch %	0	100	26.1	73.9	100	0	
Total %	0	65.6	1.4	4.1	28.9	0	

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	111	111	4	6	10	37	0	37	158
04:15 PM	0	108	108	3	6	9	50	0	50	167
04:30 PM	0	105	105	5	4	9	48	0	48	162
04:45 PM	0	115	115	2	13	15	40	0	40	170
Total Volume	0	439	439	14	29	43	175	0	175	657
% App. Total	0	100		32.6	67.4		100	0		
PHF	.000	.954	.954	.700	.558	.717	.875	.000	.875	.966

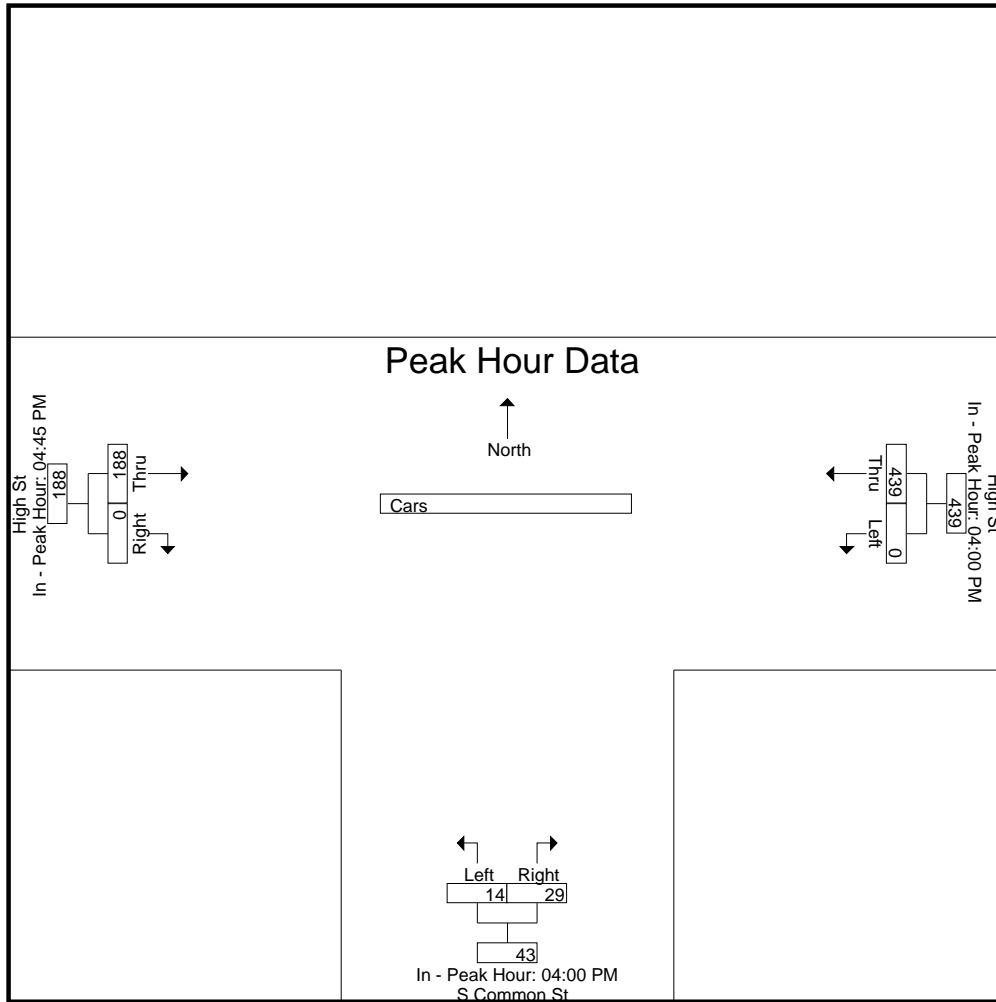
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:45 PM		
+0 mins.	0	111	111	4	6	10	40	0	40
+15 mins.	0	108	108	3	6	9	46	0	46
+30 mins.	0	105	105	5	4	9	48	0	48
+45 mins.	0	115	115	2	13	15	54	0	54
Total Volume	0	439	439	14	29	43	188	0	188
% App. Total	0	100		32.6	67.4		100	0	
PHF	.000	.954	.954	.700	.558	.717	.870	.000	.870

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain

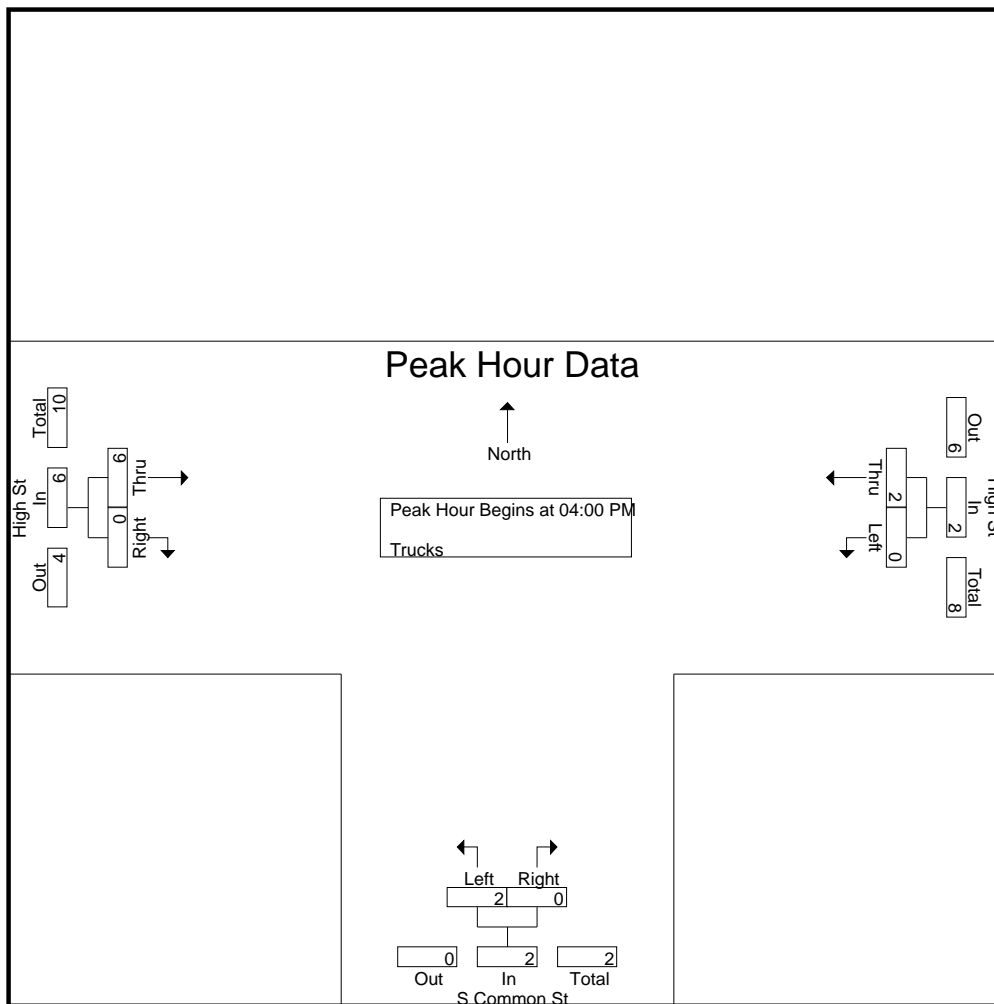
File Name : 93610001
Site Code : 93610001
Start Date : 5/4/2022
Page No : 7

Groups Printed- Trucks

Start Time	High St From East		S Common St From South		High St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	0	0	0	3	0	3
04:15 PM	0	0	0	0	2	0	2
04:30 PM	0	0	1	0	0	0	1
04:45 PM	0	2	1	0	1	0	4
Total	0	2	2	0	6	0	10
05:00 PM	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	1	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	2
Grand Total	0	3	2	0	7	0	12
Apprch %	0	100	100	0	100	0	
Total %	0	25	16.7	0	58.3	0	

Start Time	High St From East			S Common St From South			High St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	3	0	3	3
04:15 PM	0	0	0	0	0	0	2	0	2	2
04:30 PM	0	0	0	1	0	1	0	0	0	1
04:45 PM	0	2	2	1	0	1	1	0	1	4
Total Volume	0	2	2	2	0	2	6	0	6	10
% App. Total	0	100	100	100	0	0	100	0	0	100
PHF	.000	.250	.250	.500	.000	.500	.500	.000	.500	.625

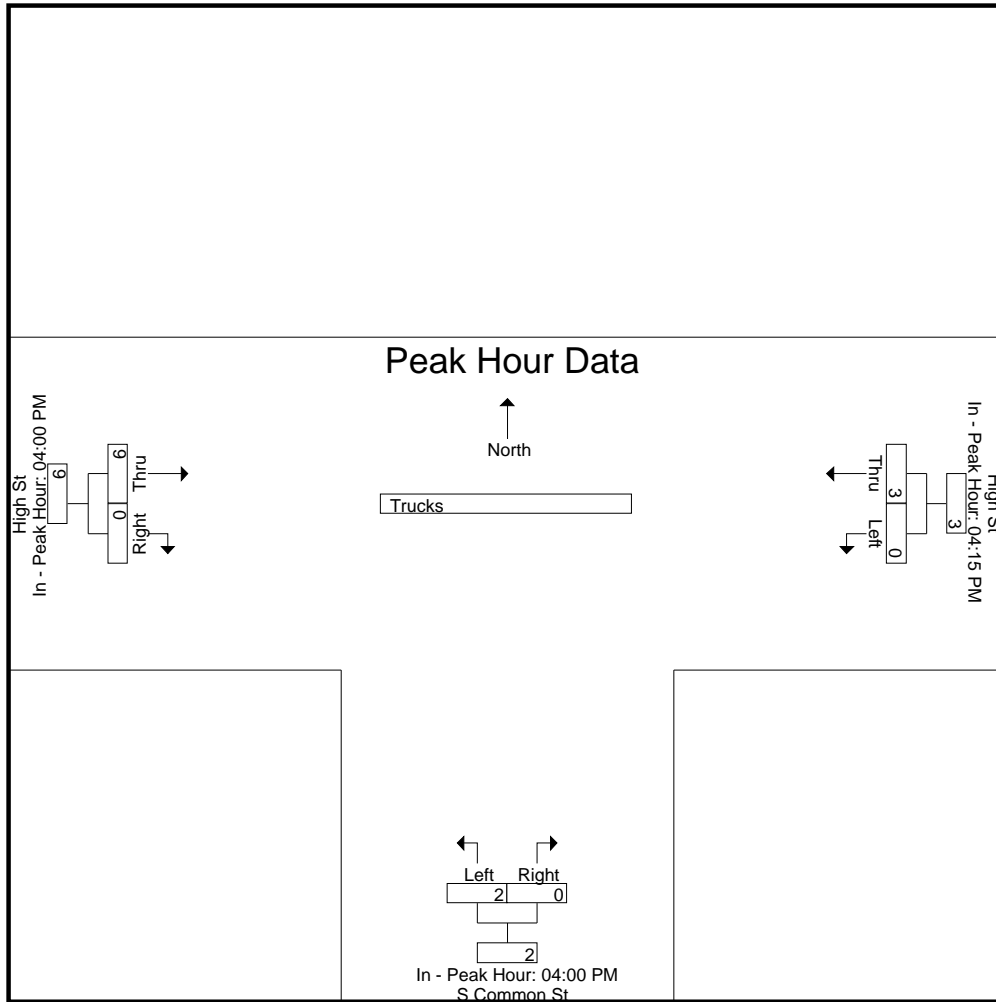
N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



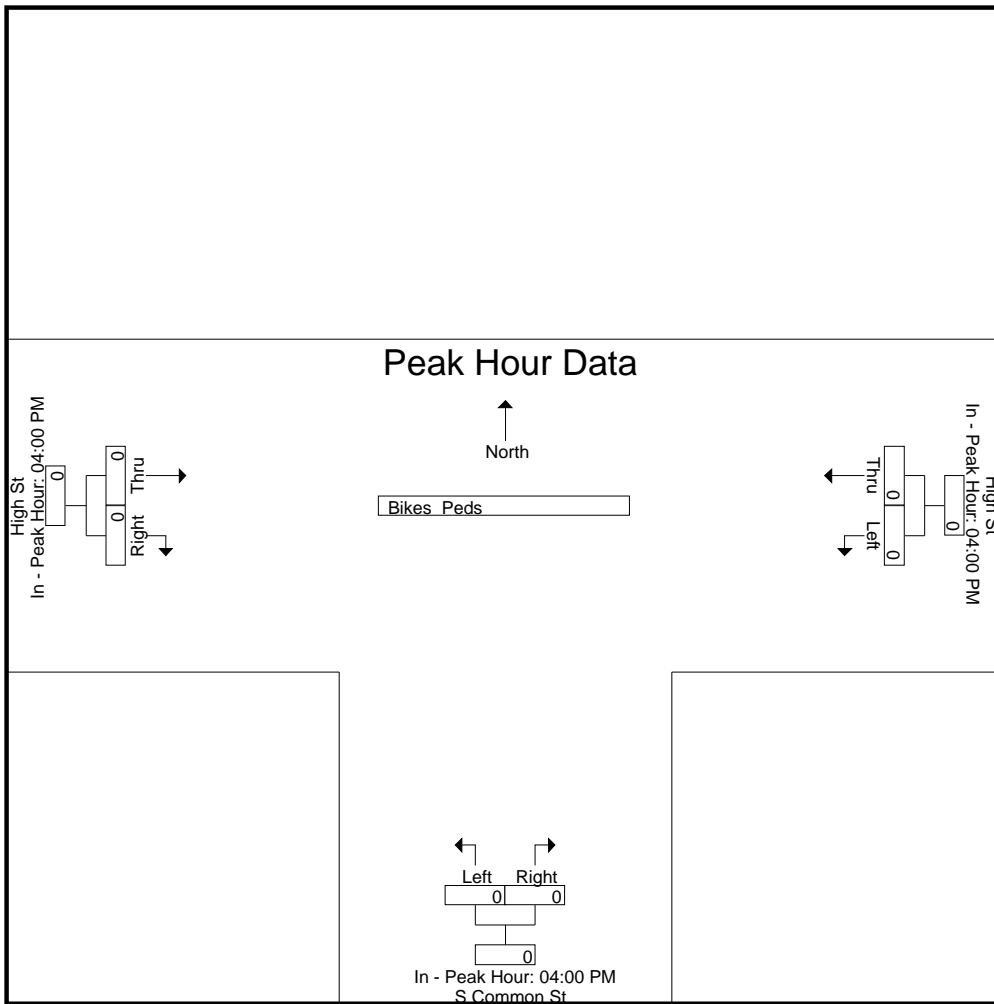
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	3	0	3
+15 mins.	0	0	0	0	0	0	2	0	2
+30 mins.	0	2	2	1	0	1	0	0	0
+45 mins.	0	1	1	1	0	1	1	0	1
Total Volume	0	3	3	2	0	2	6	0	6
% App. Total	0	100		100	0		100	0	
PHF	.000	.375	.375	.500	.000	.500	.500	.000	.500

N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



N/S Street : South Common Street
E/W Street : High Street
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 1

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

Groups Printed- Cars - Trucks

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	
07:00 AM	0	66	16	0	0	0	0	0	1	12	12	1	4	17	0	0	1	3	38	1	172
07:15 AM	0	70	38	0	0	1	0	0	2	16	25	2	3	10	1	0	0	4	50	2	224
07:30 AM	1	76	33	1	1	1	0	0	3	7	24	2	1	12	1	1	0	2	52	2	220
07:45 AM	0	58	36	2	1	1	1	0	5	19	22	3	3	21	3	0	0	2	41	1	219
Total	1	270	123	3	2	3	1	0	11	54	83	8	11	60	5	1	1	11	181	6	835
08:00 AM	1	63	21	1	0	0	0	0	3	21	34	3	7	17	0	0	1	5	28	3	208
08:15 AM	10	47	26	1	0	2	0	0	3	23	25	5	4	19	3	1	0	8	37	10	224
08:30 AM	3	52	51	1	1	4	1	0	12	16	25	5	2	25	4	0	1	11	44	34	292
08:45 AM	2	49	30	1	0	4	0	0	2	15	22	4	5	24	1	0	1	3	29	5	197
Total	16	211	128	4	1	10	1	0	20	75	106	17	18	85	8	1	3	27	138	52	921
Grand Total	17	481	251	7	3	13	2	0	31	129	189	25	29	145	13	2	4	38	319	58	1756
Apprch %	2.2	63.6	33.2	0.9	16.7	72.2	11.1	0	8.3	34.5	50.5	6.7	15.3	76.7	6.9	1.1	1	9.1	76.1	13.8	
Total %	1	27.4	14.3	0.4	0.2	0.7	0.1	0	1.8	7.3	10.8	1.4	1.7	8.3	0.7	0.1	0.2	2.2	18.2	3.3	
Cars	17	471	241	7	3	13	2	0	30	124	178	24	26	129	13	2	4	38	314	58	1694
% Cars	100	97.9	96	100	100	100	100	0	96.8	96.1	94.2	96	89.7	89	100	100	100	100	98.4	100	96.5
Trucks	0	10	10	0	0	0	0	0	1	5	11	1	3	16	0	0	0	0	5	0	62
% Trucks	0	2.1	4	0	0	0	0	0	3.2	3.9	5.8	4	10.3	11	0	0	0	0	1.6	0	3.5

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45 AM																										
07:45 AM	0	58	36	2	96	1	1	1	0	3	5	19	22	3	49	3	21	3	0	27	0	2	41	1	44	219
08:00 AM	1	63	21	1	86	0	0	0	0	0	3	21	34	3	61	7	17	0	0	24	1	5	28	3	37	208
08:15 AM	10	47	26	1	84	0	2	0	0	2	3	23	25	5	56	4	19	3	1	27	0	8	37	10	55	224
08:30 AM	3	52	51	1	107	1	4	1	0	6	12	16	25	5	58	2	25	4	0	31	1	11	44	34	90	292
Total Volume	14	220	134	5	373	2	7	2	0	11	23	79	106	16	224	16	82	10	1	109	2	26	150	48	226	943
% App. Total	3.8	59	35.9	1.3	18.2	63.6	18.2	0	10.3	35.3	47.3	7.1	14.7	75.2	9.2	0.9	0.9	11.5	66.4	21.2						
PHF	.350	.873	.657	.625	.871	.500	.438	.500	.000	.458	.479	.859	.779	.800	.918	.571	.820	.625	.250	.879	.500	.591	.852	.353	.628	.807
Cars	14	218	132	5	369	2	7	2	0	11	23	77	98	15	213	13	74	10	1	98	2	26	149	48	225	916
% Cars	100	99.1	98.5	100	98.9	100	100	100	0	100	100	97.5	92.5	93.8	95.1	81.3	90.2	100	100	89.9	100	100	99.3	100	99.6	97.1
Trucks	0	2	2	0	4	0	0	0	0	0	0	2	8	1	11	3	8	0	0	11	0	0	1	0	1	27
% Trucks	0	0.9	1.5	0	1.1	0	0	0	0	0	0	2.5	7.5	6.3	4.9	18.8	9.8	0	0	10.1	0	0	0.7	0	0.4	2.9

Accurate Counts

978-664-2565

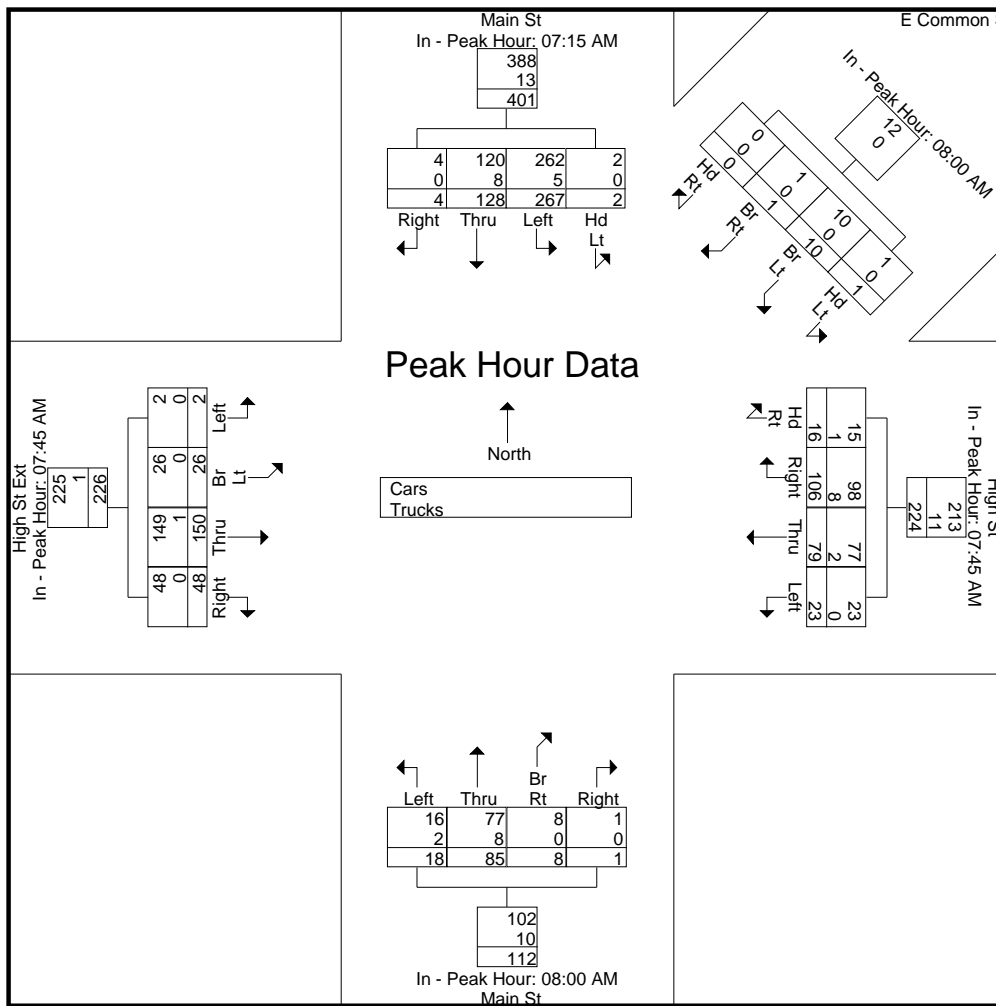
File Name : 93610002

Site Code : 93610002

Start Date : 5/4/2022

Page No : 3

N/S Street : Main Street
 E/W Street : High St / High St Ext.
 City/State : Topsfield, MA
 Weather : Rain



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

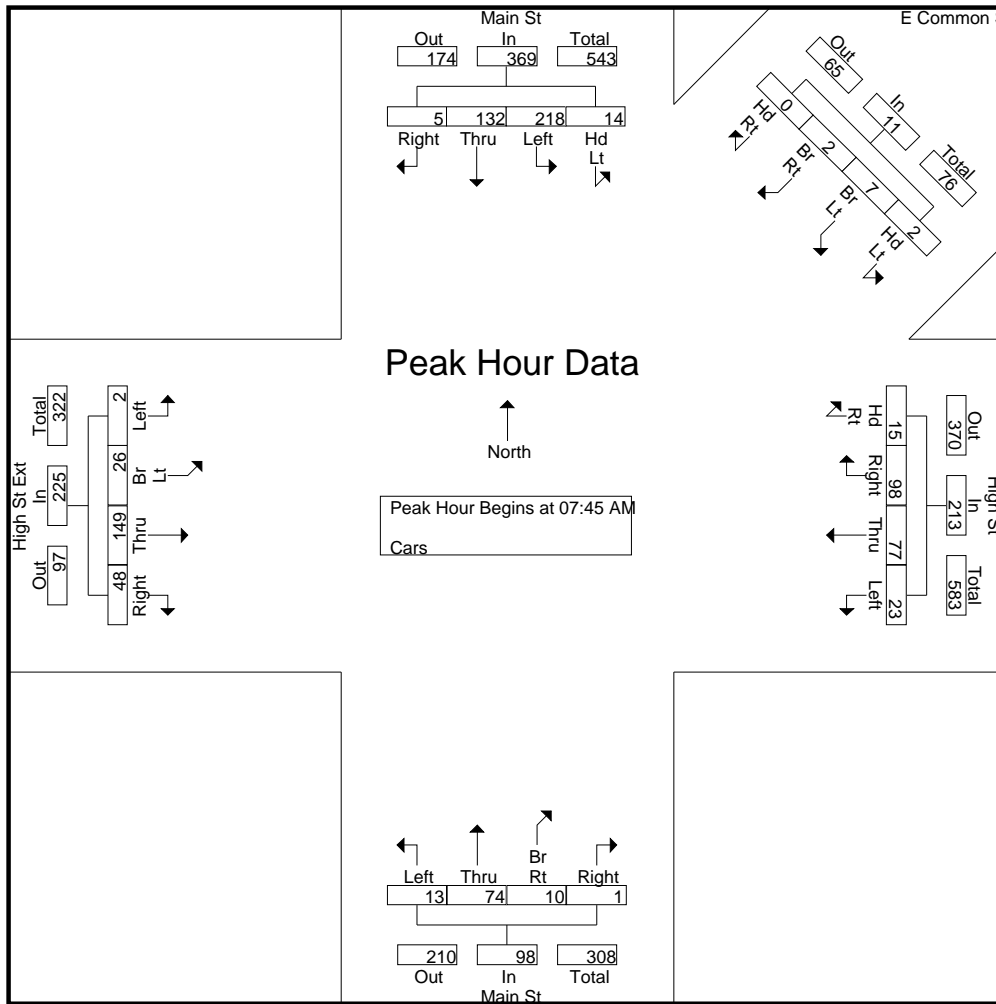
File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 4

Groups Printed- Cars

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	
07:00 AM	0	66	16	0	0	0	0	0	1	10	11	1	4	14	0	0	1	3	38	1	166
07:15 AM	0	67	36	0	0	1	0	0	2	16	24	2	3	10	1	0	0	4	49	2	217
07:30 AM	1	74	28	1	1	1	0	0	2	7	24	2	1	12	1	1	0	2	52	2	212
07:45 AM	0	58	36	2	1	1	1	0	5	19	22	3	2	16	3	0	0	2	40	1	212
Total	1	265	116	3	2	3	1	0	10	52	81	8	10	52	5	1	1	11	179	6	807
08:00 AM	1	63	20	1	0	0	0	0	3	20	32	3	5	16	0	0	1	5	28	3	201
08:15 AM	10	46	25	1	0	2	0	0	3	23	23	5	4	19	3	1	0	8	37	10	220
08:30 AM	3	51	51	1	1	4	1	0	12	15	21	4	2	23	4	0	1	11	44	34	283
08:45 AM	2	46	29	1	0	4	0	0	2	14	21	4	5	19	1	0	1	3	26	5	183
Total	16	206	125	4	1	10	1	0	20	72	97	16	16	77	8	1	3	27	135	52	887
Grand Total	17	471	241	7	3	13	2	0	30	124	178	24	26	129	13	2	4	38	314	58	1694
Apprch %	2.3	64	32.7	1	16.7	72.2	11.1	0	8.4	34.8	50	6.7	15.3	75.9	7.6	1.2	1	9.2	75.8	14	
Total %	1	27.8	14.2	0.4	0.2	0.8	0.1	0	1.8	7.3	10.5	1.4	1.5	7.6	0.8	0.1	0.2	2.2	18.5	3.4	

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45 AM																										
07:45 AM	0	58	36	2	96	1	1	1	0	3	5	19	22	3	49	2	16	3	0	21	0	2	40	1	43	212
08:00 AM	1	63	20	1	85	0	0	0	0	0	3	20	32	3	58	5	16	0	0	21	1	5	28	3	37	201
08:15 AM	10	46	25	1	82	0	2	0	0	2	3	23	23	5	54	4	19	3	1	27	0	8	37	10	55	220
08:30 AM	3	51	51	1	106	1	4	1	0	6	12	15	21	4	52	2	23	4	0	29	1	11	44	34	90	283
Total Volume	14	218	132	5	369	2	7	2	0	11	23	77	98	15	213	13	74	10	1	98	2	26	149	48	225	916
% App. Total	3.8	59.1	35.8	1.4	18.2	63.6	18.2	0	10.8	36.2	46	7	13.3	75.5	10.2	1	0.9	11.6	66.2	21.3						
PHF	.350	.865	.647	.625	.870	.500	.438	.500	.000	.458	.479	.837	.766	.750	.918	.650	.804	.625	.250	.845	.500	.591	.847	.353	.625	.809

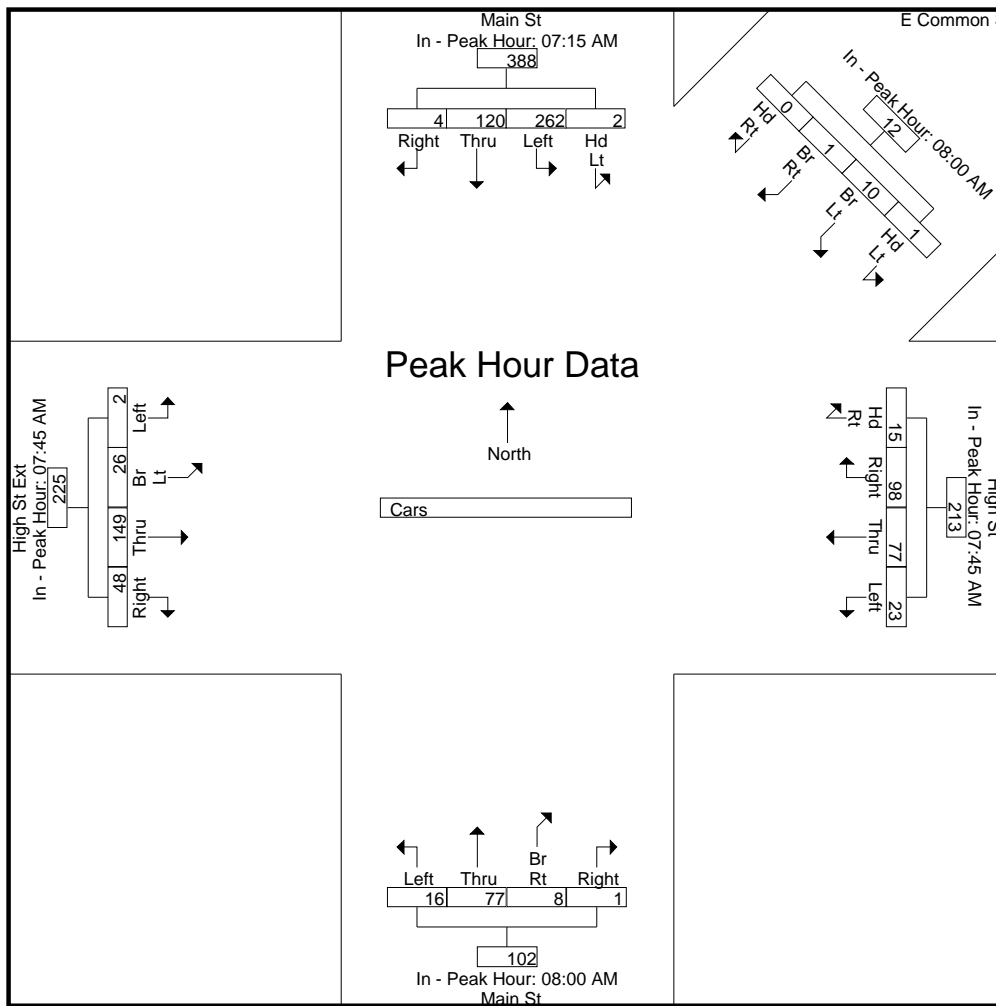
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					08:00 AM					07:45 AM					08:00 AM					07:45 AM				
+0 mins.	0	67	36	0	103	0	0	0	0	0	5	19	22	3	49	5	16	0	0	21	0	2	40	1	43
+15 mins.	1	74	28	1	104	0	2	0	0	2	3	20	32	3	58	4	19	3	1	27	1	5	28	3	37
+30 mins.	0	58	36	2	96	1	4	1	0	6	3	23	23	5	54	2	23	4	0	29	0	8	37	10	55
+45 mins.	1	63	20	1	85	0	4	0	0	4	12	15	21	4	52	5	19	1	0	25	1	11	44	34	90
Total Volume	2	262	120	4	388	1	10	1	0	12	23	77	98	15	213	16	77	8	1	102	2	26	149	48	225
% App. Total	0.5	67.5	30.9	1		8.3	83.3	8.3	0		10.8	36.2	46	7		15.7	75.5	7.8	1		0.9	11.6	66.2	21.3	
PHF	.500	.885	.833	.500	.933	.250	.625	.250	.000	.500	.479	.837	.766	.750	.918	.800	.837	.500	.250	.879	.500	.591	.847	.353	.625

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

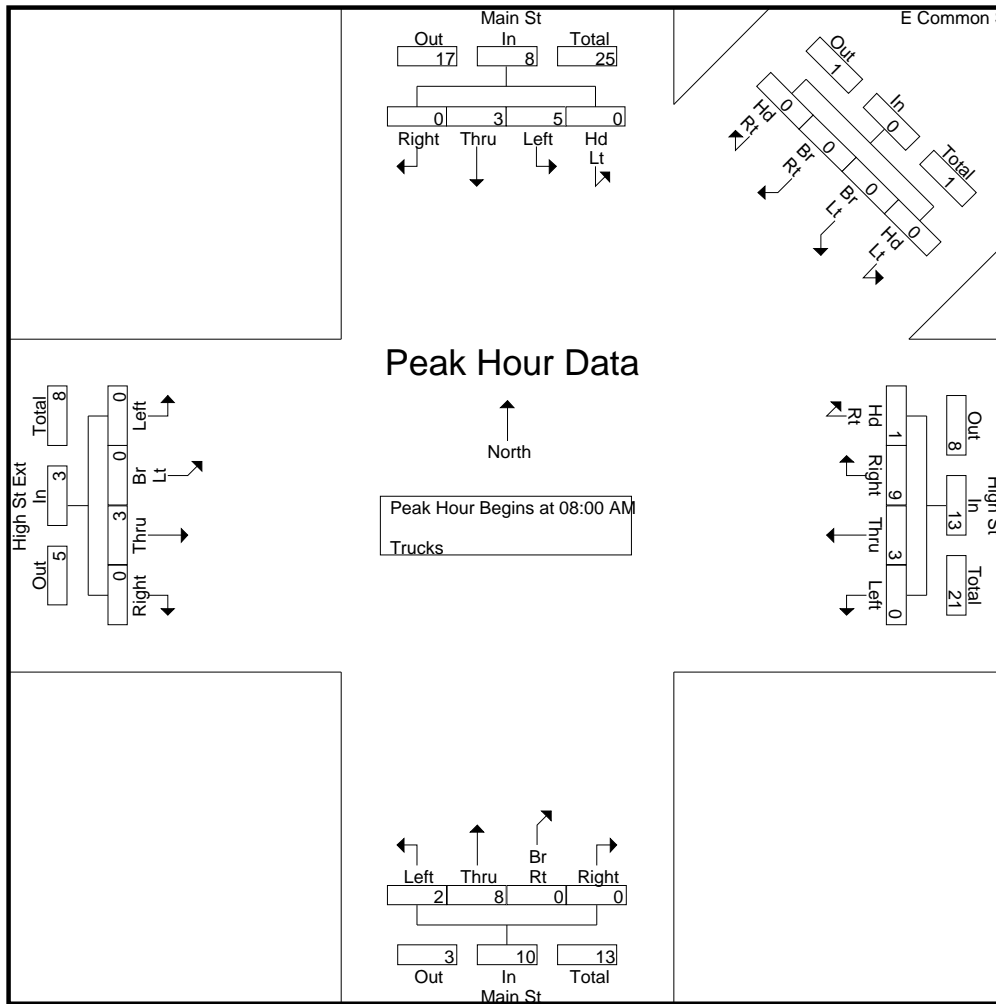
File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 7

Groups Printed- Trucks

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	
07:00 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	6
07:15 AM	0	3	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	7
07:30 AM	0	2	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	1	0	7
Total	0	5	7	0	0	0	0	0	1	2	2	0	1	8	0	0	0	0	2	0	28
08:00 AM	0	0	1	0	0	0	0	0	0	1	2	0	2	1	0	0	0	0	0	0	7
08:15 AM	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	1	0	0	0	0	0	0	0	1	4	1	0	2	0	0	0	0	0	0	9
08:45 AM	0	3	1	0	0	0	0	0	0	1	1	0	0	5	0	0	0	0	3	0	14
Total	0	5	3	0	0	0	0	0	0	3	9	1	2	8	0	0	0	0	3	0	34
Grand Total	0	10	10	0	0	0	0	0	1	5	11	1	3	16	0	0	0	0	5	0	62
Apprch %	0	50	50	0	0	0	0	0	5.6	27.8	61.1	5.6	15.8	84.2	0	0	0	0	100	0	
Total %	0	16.1	16.1	0	0	0	0	0	1.6	8.1	17.7	1.6	4.8	25.8	0	0	0	0	8.1	0	

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	2	0	3	2	1	0	0	3	0	0	0	0	0	7
08:15 AM	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	4	1	6	0	2	0	0	2	0	0	0	0	0	9
08:45 AM	0	3	1	0	4	0	0	0	0	0	0	1	1	0	2	0	5	0	0	5	0	0	3	0	3	14
Total Volume	0	5	3	0	8	0	0	0	0	0	0	3	9	1	13	2	8	0	0	10	0	0	3	0	3	34
% App. Total	0	62.5	37.5	0		0	0	0	0		0	23.1	69.2	7.7		20	80	0	0		0	0	100	0		
PHF	.000	.417	.750	.000	.500	.000	.000	.000	.000	.000	.000	.750	.563	.250	.542	.250	.400	.000	.000	.500	.000	.000	.250	.000	.250	.607

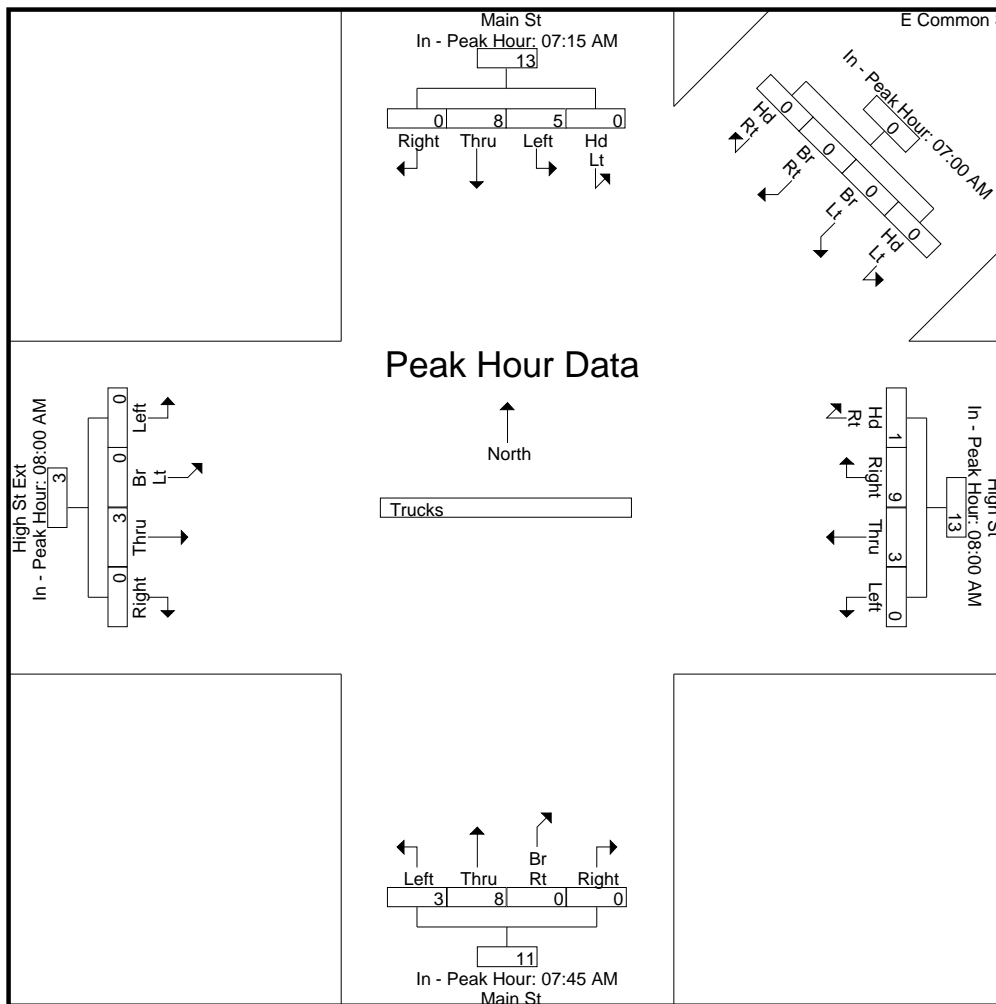
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					08:00 AM					07:45 AM					08:00 AM				
+0 mins.	0	3	2	0	5	0	0	0	0	0	0	1	2	0	3	1	5	0	0	6	0	0	0	0	0
+15 mins.	0	2	5	0	7	0	0	0	0	0	0	0	2	0	2	2	1	0	0	3	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	1	4	1	6	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	0	2	0	0	2	0	0	3	0	3
Total Volume	0	5	8	0	13	0	0	0	0	0	0	3	9	1	13	3	8	0	0	11	0	0	3	0	3
% App. Total	0	38.5	61.5	0		0	0	0	0	0	0	23.1	69.2	7.7		27.3	72.7	0	0		0	0	100	0	
PHF	.000	.417	.400	.000	.464	.000	.000	.000	.000	.000	.000	.750	.563	.250	.542	.375	.400	.000	.000	.458	.000	.000	.250	.000	.250

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 10

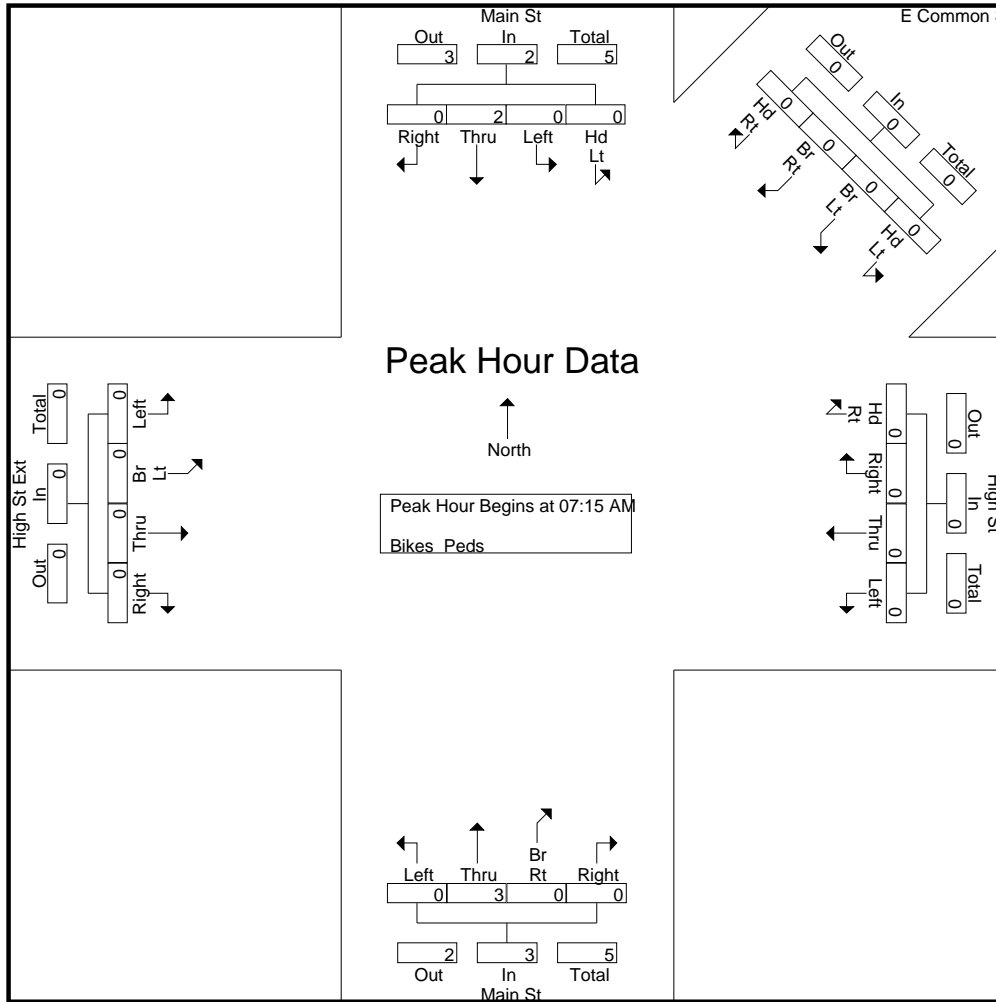
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

Groups Printed- Bikes Peds

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Exclu. Total	Inclu. Total	Int. Total					
	Hd Lt	Left	Thru	Right	Peds	Hd Lt	Br Lt	Br Rt	Hd Rt	Peds	Left	Thru	Right	Hd Rt	Peds	Left	Thru	Br Rt	Right	Peds	Left	Br Lt	Thru	Right	Peds								
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	4
08:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	6
Grand Total	0	0	2	0	1	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	4	6	10
Apprch %	0	0	100	0		0	0	0	0		0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0				
Total %	0	0	33.3	0		0	0	0	0		0	16.7	0	0		0	50	0	0		0	0	0	0		0	0	0	0		40	60	

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total					
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total						
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:15 AM																															
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
% App. Total	0	0	100	0		0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.417		

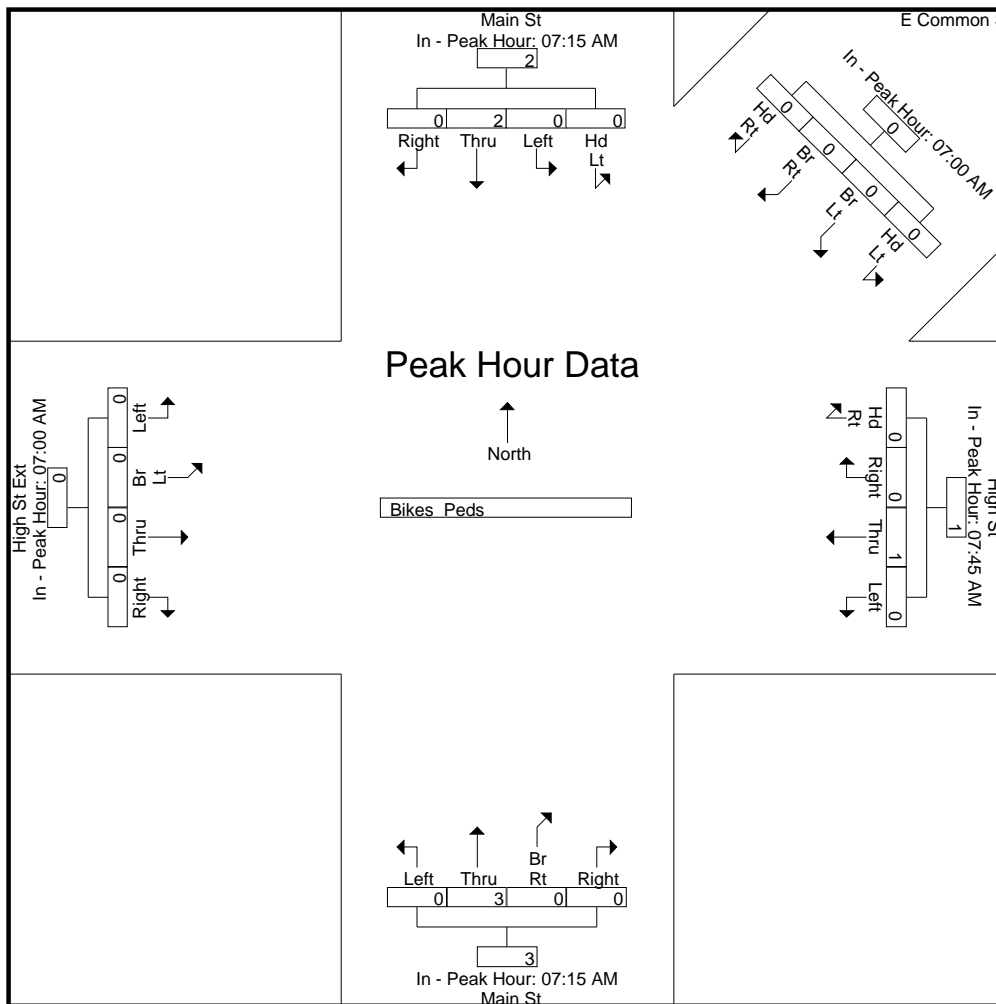
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:00 AM					07:45 AM					07:15 AM					07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+45 mins.	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
Total Volume	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0
% App. Total	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 1

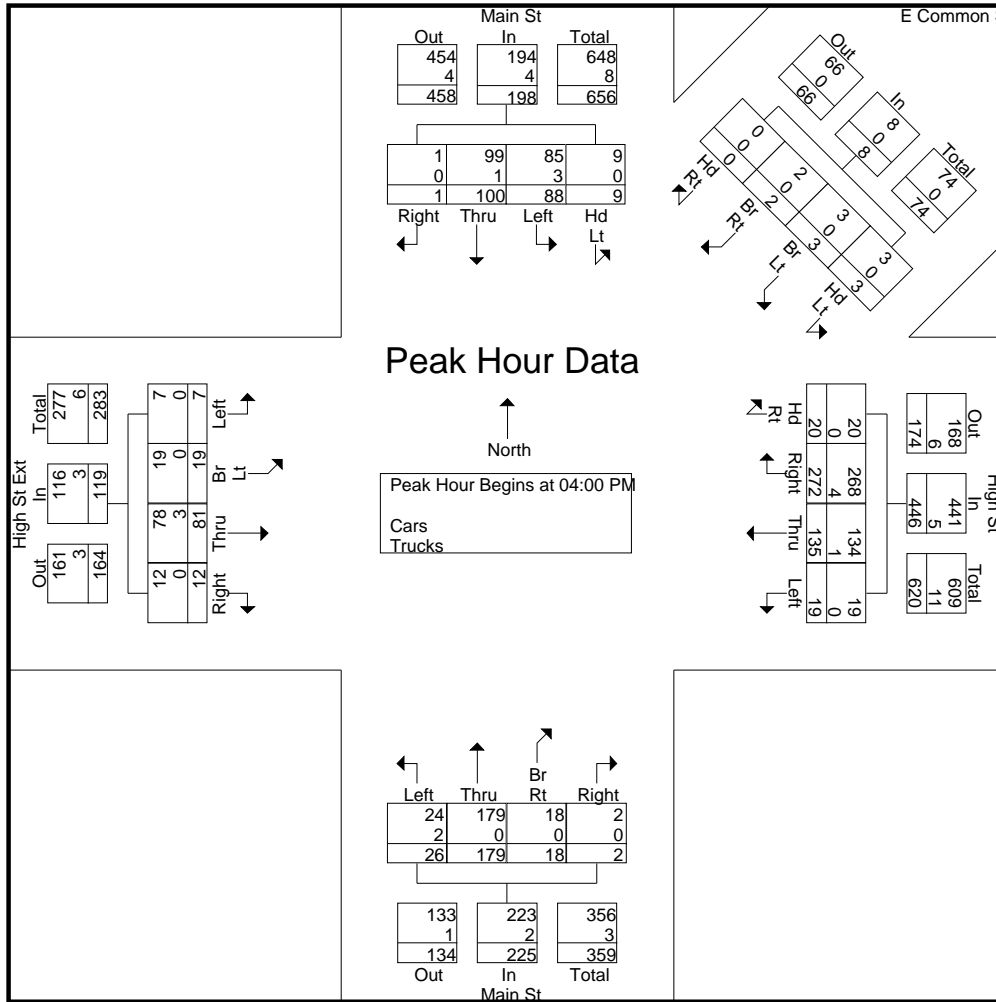
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

Groups Printed- Cars - Trucks

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	
04:00 PM	2	18	28	1	2	0	0	0	6	26	78	5	4	44	5	1	3	2	23	3	251
04:15 PM	5	25	20	0	0	1	1	0	5	27	70	6	6	39	3	1	1	10	22	5	247
04:30 PM	1	27	30	0	0	1	1	0	3	35	69	3	5	46	2	0	2	4	16	2	247
04:45 PM	1	18	22	0	1	1	0	0	5	47	55	6	11	50	8	0	1	3	20	2	251
Total	9	88	100	1	3	3	2	0	19	135	272	20	26	179	18	2	7	19	81	12	996
05:00 PM	3	21	20	0	0	1	0	0	6	22	59	3	11	51	2	0	1	5	25	4	234
05:15 PM	2	23	24	0	1	1	0	0	3	37	67	2	9	33	4	1	1	5	25	2	240
05:30 PM	1	27	18	1	0	1	0	0	5	30	61	7	7	36	0	1	0	4	26	3	228
05:45 PM	2	15	20	0	0	1	0	0	0	19	48	4	4	28	3	0	1	5	23	0	173
Total	8	86	82	1	1	4	0	0	14	108	235	16	31	148	9	2	3	19	99	9	875
Grand Total	17	174	182	2	4	7	2	0	33	243	507	36	57	327	27	4	10	38	180	21	1871
Apprch %	4.5	46.4	48.5	0.5	30.8	53.8	15.4	0	4	29.7	61.9	4.4	13.7	78.8	6.5	1	4	15.3	72.3	8.4	
Total %	0.9	9.3	9.7	0.1	0.2	0.4	0.1	0	1.8	13	27.1	1.9	3	17.5	1.4	0.2	0.5	2	9.6	1.1	
Cars	17	170	181	2	4	7	2	0	33	241	502	36	55	326	27	4	10	38	177	21	1853
% Cars	100	97.7	99.5	100	100	100	100	0	100	99.2	99	100	96.5	99.7	100	100	100	100	98.3	100	99
Trucks	0	4	1	0	0	0	0	0	0	2	5	0	2	1	0	0	0	0	3	0	18
% Trucks	0	2.3	0.5	0	0	0	0	0	0	0.8	1	0	3.5	0.3	0	0	0	0	1.7	0	1

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:00 PM																										
04:00 PM	2	18	28	1	49	2	0	0	0	2	6	26	78	5	115	4	44	5	1	54	3	2	23	3	31	251
04:15 PM	5	25	20	0	50	0	1	1	0	2	5	27	70	6	108	6	39	3	1	49	1	10	22	5	38	247
04:30 PM	1	27	30	0	58	0	1	1	0	2	3	35	69	3	110	5	46	2	0	53	2	4	16	2	24	247
04:45 PM	1	18	22	0	41	1	1	0	0	2	5	47	55	6	113	11	50	8	0	69	1	3	20	2	26	251
Total Volume	9	88	100	1	198	3	3	2	0	8	19	135	272	20	446	26	179	18	2	225	7	19	81	12	119	996
% App. Total	4.5	44.4	50.5	0.5	37.5	37.5	25	0	4.3	30.3	61	4.5	11.6	79.6	8	0.9	5.9	16	68.1	10.1						
PHF	.450	.815	.833	.250	.853	.375	.750	.500	.000	1.00	.792	.718	.872	.833	.970	.591	.895	.563	.500	.815	.583	.475	.880	.600	.783	.992
Cars	9	85	99	1	194	3	3	2	0	8	19	134	268	20	441	24	179	18	2	223	7	19	78	12	116	982
% Cars	100	96.6	99.0	100	98.0	100	100	100	0	100	100	99.3	98.5	100	98.9	92.3	100	100	100	99.1	100	100	96.3	100	97.5	98.6
Trucks	0	3	1	0	4	0	0	0	0	0	0	1	4	0	5	2	0	0	0	2	0	0	3	0	3	14
% Trucks	0	3.4	1.0	0	2.0	0	0	0	0	0	0	0.7	1.5	0	1.1	7.7	0	0	0	0.9	0	0	3.7	0	2.5	1.4

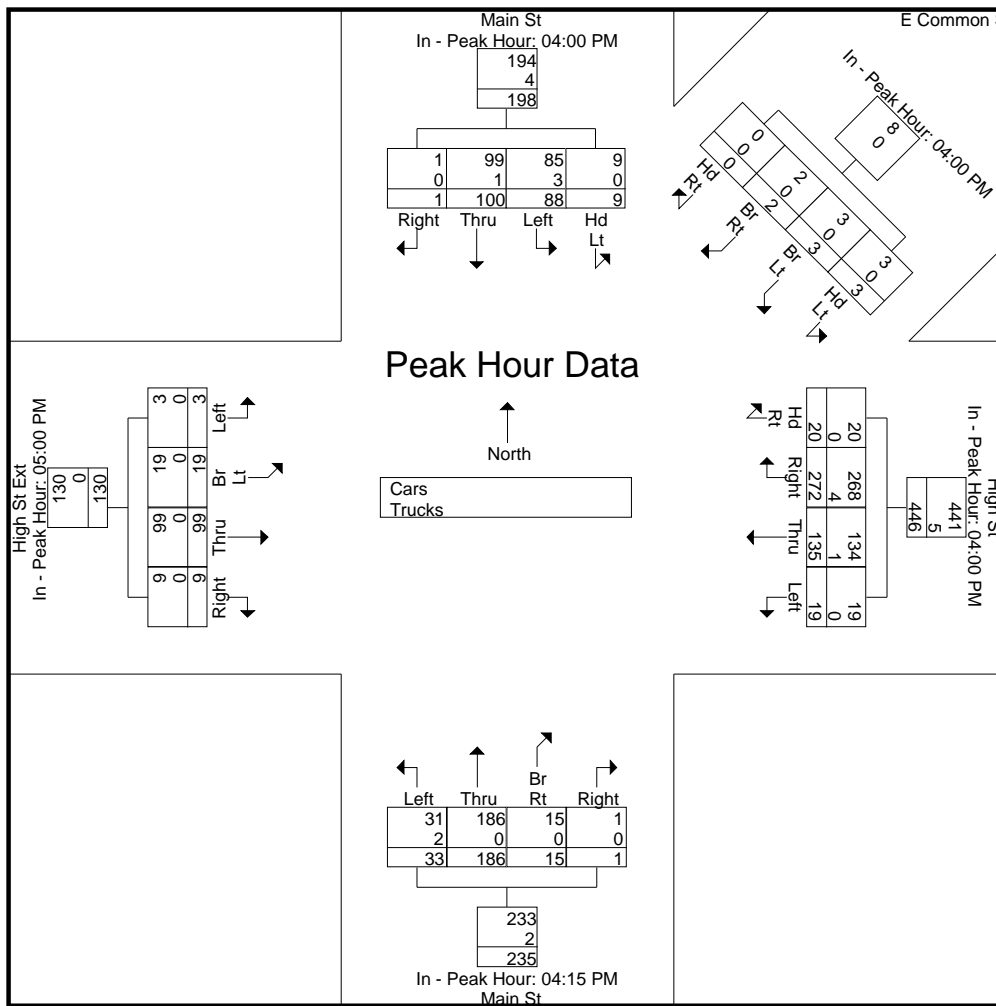
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:15 PM					05:00 PM									
+0 mins.	2	18	28	1	49	2	0	0	0	2	6	26	78	5	115	6	39	3	1	49	1	5	25	4	35
+15 mins.	5	25	20	0	50	0	1	1	0	2	5	27	70	6	108	5	46	2	0	53	1	5	25	2	33
+30 mins.	1	27	30	0	58	0	1	1	0	2	3	35	69	3	110	11	50	8	0	69	0	4	26	3	33
+45 mins.	1	18	22	0	41	1	1	0	0	2	5	47	55	6	113	11	51	2	0	64	1	5	23	0	29
Total Volume	9	88	100	1	198	3	3	2	0	8	19	135	272	20	446	33	186	15	1	235	3	19	99	9	130
% App. Total	4.5	44.4	50.5	0.5		37.5	37.5	25	0		4.3	30.3	61	4.5		14	79.1	6.4	0.4		2.3	14.6	76.2	6.9	
PHF	.450	.815	.833	.250	.853	.375	.750	.500	.000	1.000	.792	.718	.872	.833	.970	.750	.912	.469	.250	.851	.750	.950	.952	.563	.929
Cars	9	85	99	1	194	3	3	2	0	8	19	13	26	20	441	31	18	15	1	233	3	19	99	9	130
% Cars	10	96.	99	10	98	10	10	10	0	100	10	99.	98.	10	98.9	93.	10	10	10	99.1	10	10	10	10	100
Trucks	0	3	1	0	4	0	0	0	0	0	0	3	5	0	5	2	0	0	0	2	0	0	0	0	0
% Trucks	0	3.4	1	0	2	0	0	0	0	0	0	0.7	1.5	0	1.1	6.1	0	0	0	0.9	0	0	0	0	0

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

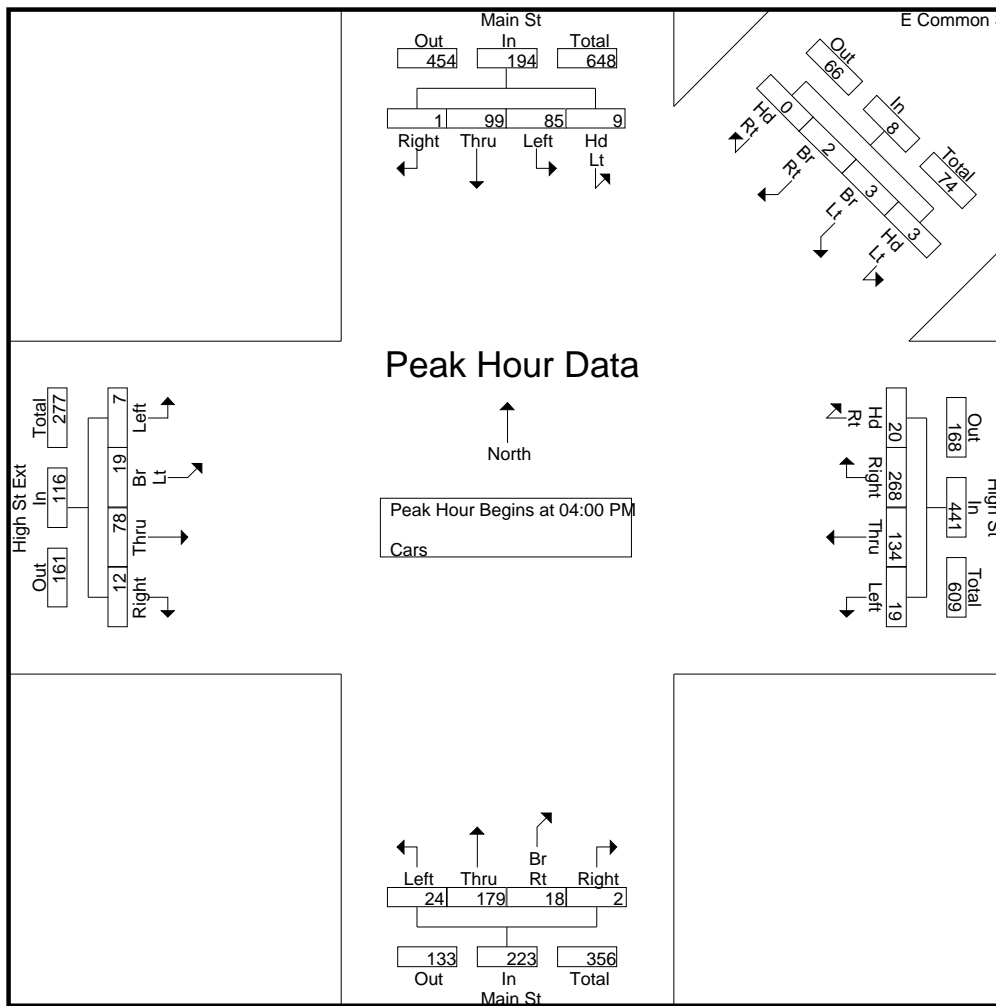
File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 4

Groups Printed- Cars

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	
04:00 PM	2	18	28	1	2	0	0	0	6	26	78	5	4	44	5	1	3	2	20	3	248
04:15 PM	5	23	20	0	0	1	1	0	5	27	70	6	5	39	3	1	1	10	22	5	244
04:30 PM	1	26	30	0	0	1	1	0	3	34	68	3	5	46	2	0	2	4	16	2	244
04:45 PM	1	18	21	0	1	1	0	0	5	47	52	6	10	50	8	0	1	3	20	2	246
Total	9	85	99	1	3	3	2	0	19	134	268	20	24	179	18	2	7	19	78	12	982
05:00 PM	3	21	20	0	0	1	0	0	6	21	58	3	11	51	2	0	1	5	25	4	232
05:15 PM	2	22	24	0	1	1	0	0	3	37	67	2	9	33	4	1	1	5	25	2	239
05:30 PM	1	27	18	1	0	1	0	0	5	30	61	7	7	35	0	1	0	4	26	3	227
05:45 PM	2	15	20	0	0	1	0	0	0	19	48	4	4	28	3	0	1	5	23	0	173
Total	8	85	82	1	1	4	0	0	14	107	234	16	31	147	9	2	3	19	99	9	871
Grand Total	17	170	181	2	4	7	2	0	33	241	502	36	55	326	27	4	10	38	177	21	1853
Apprch %	4.6	45.9	48.9	0.5	30.8	53.8	15.4	0	4.1	29.7	61.8	4.4	13.3	79.1	6.6	1	4.1	15.4	72	8.5	
Total %	0.9	9.2	9.8	0.1	0.2	0.4	0.1	0	1.8	13	27.1	1.9	3	17.6	1.5	0.2	0.5	2.1	9.6	1.1	

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:00 PM																										
04:00 PM	2	18	28	1	49	2	0	0	0	2	6	26	78	5	115	4	44	5	1	54	3	2	20	3	28	248
04:15 PM	5	23	20	0	48	0	1	1	0	2	5	27	70	6	108	5	39	3	1	48	1	10	22	5	38	244
04:30 PM	1	26	30	0	57	0	1	1	0	2	3	34	68	3	108	5	46	2	0	53	2	4	16	2	24	244
04:45 PM	1	18	21	0	40	1	1	0	0	2	5	47	52	6	110	10	50	8	0	68	1	3	20	2	26	246
Total Volume	9	85	99	1	194	3	3	2	0	8	19	134	268	20	441	24	179	18	2	223	7	19	78	12	116	982
% App. Total	4.6	43.8	51	0.5	37.5	37.5	25	0	4.3	30.4	60.8	4.5	10.8	80.3	8.1	0.9	6	16.4	67.2	10.3						
PHF	.450	.817	.825	.250	.851	.375	.750	.500	.000	1.00	.792	.713	.859	.833	.959	.600	.895	.563	.500	.820	.583	.475	.886	.600	.763	.990

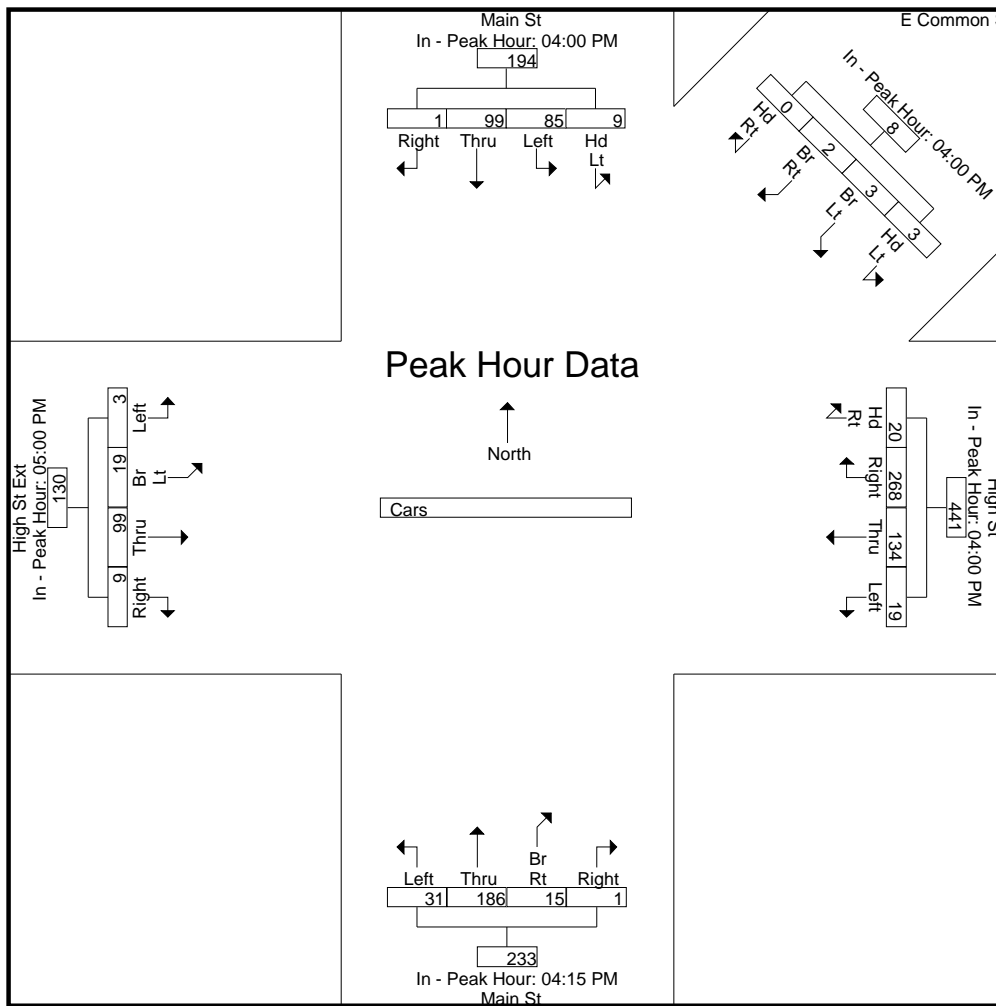
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:00 PM					04:15 PM					05:00 PM				
+0 mins.	2	18	28	1	49	2	0	0	0	2	6	26	78	5	115	5	39	3	1	48	1	5	25	4	35
+15 mins.	5	23	20	0	48	0	1	1	0	2	5	27	70	6	108	5	46	2	0	53	1	5	25	2	33
+30 mins.	1	26	30	0	57	0	1	1	0	2	3	34	68	3	108	10	50	8	0	68	0	4	26	3	33
+45 mins.	1	18	21	0	40	1	1	0	0	2	5	47	52	6	110	11	51	2	0	64	1	5	23	0	29
Total Volume	9	85	99	1	194	3	3	2	0	8	19	134	268	20	441	31	186	15	1	233	3	19	99	9	130
% App. Total	4.6	43.8	51	0.5		37.5	37.5	25	0		4.3	30.4	60.8	4.5		13.3	79.8	6.4	0.4		2.3	14.6	76.2	6.9	
PHF	.450	.817	.825	.250	.851	.375	.750	.500	.000	1.000	.792	.713	.859	.833	.959	.705	.912	.469	.250	.857	.750	.950	.952	.563	.929

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 7

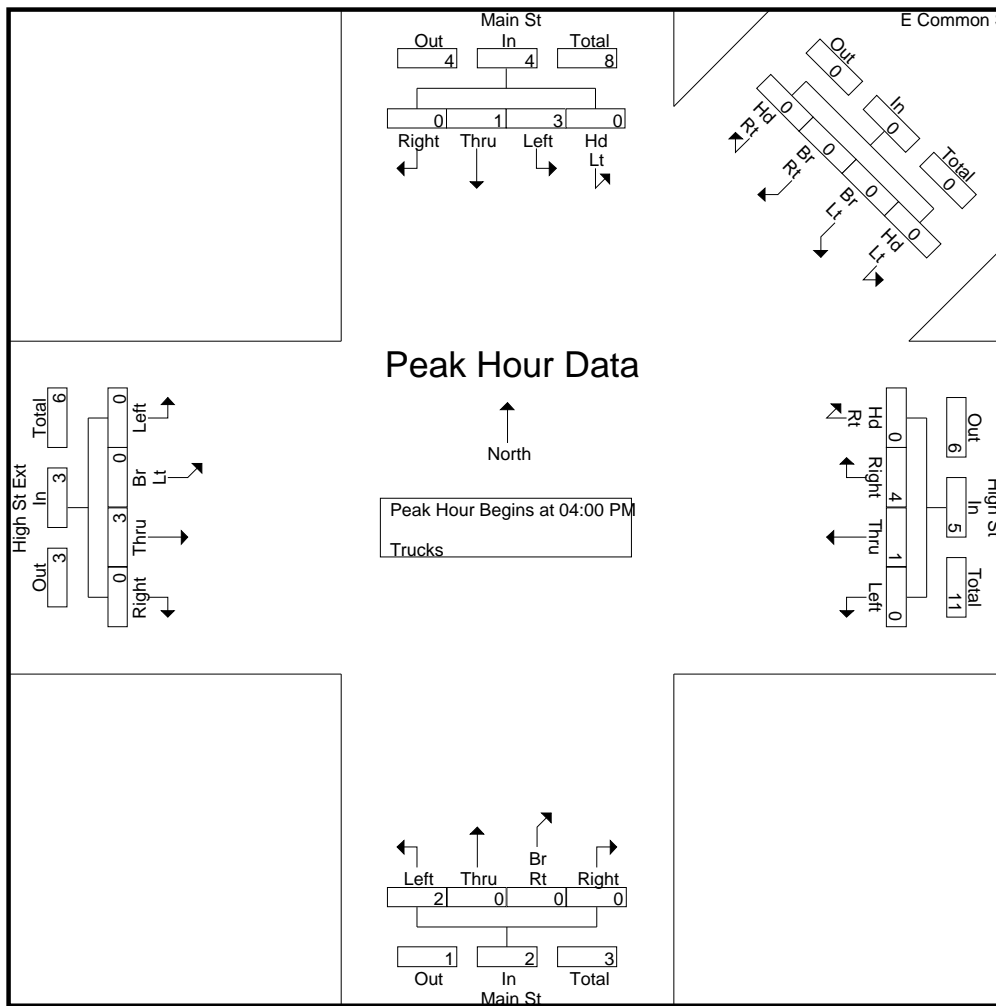
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

Groups Printed- Trucks

Start Time	Main St From North				E Common St From Northeast				High St From East				Main St From South				High St Ext From West				Int. Total	
	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
04:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
04:30 PM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	5
Total	0	3	1	0	0	0	0	0	0	1	4	0	2	0	0	0	0	0	3	0	0	14
05:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	4
Grand Total	0	4	1	0	0	0	0	0	0	2	5	0	2	1	0	0	0	0	3	0	0	18
Apprch %	0	80	20	0	0	0	0	0	0	28.6	71.4	0	66.7	33.3	0	0	0	0	100	0	0	
Total %	0	22.2	5.6	0	0	0	0	0	0	11.1	27.8	0	11.1	5.6	0	0	0	0	16.7	0	0	

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:00 PM																										
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
04:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	3	0	3	1	0	0	0	1	0	0	0	0	0	5
Total Volume	0	3	1	0	4	0	0	0	0	0	0	1	4	0	5	2	0	0	0	2	0	0	3	0	3	14
% App. Total	0	75	25	0		0	0	0	0		0	20	80	0		100	0	0	0		0	0	100	0		
PHF	.000	.375	.250	.000	.500	.000	.000	.000	.000	.000	.000	.250	.333	.000	.417	.500	.000	.000	.000	.500	.000	.000	.250	.000	.250	.700

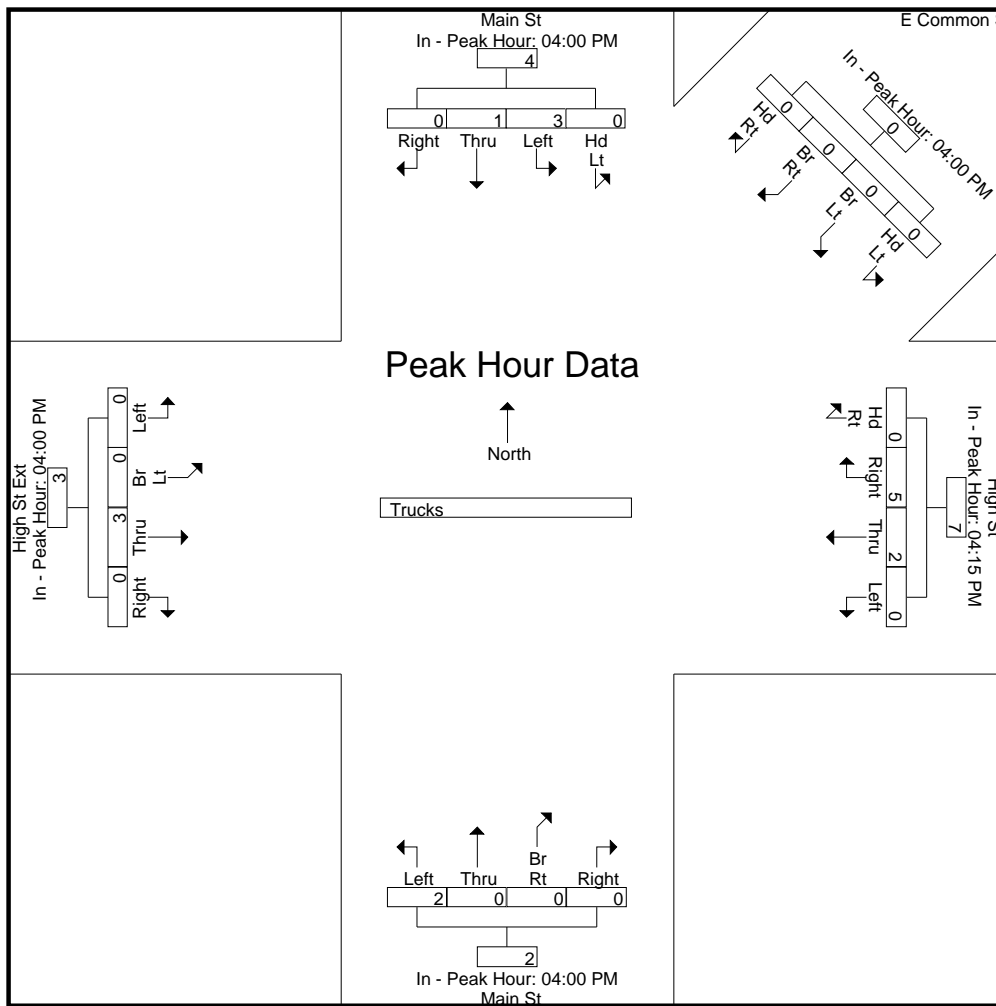
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					04:00 PM					04:00 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
+15 mins.	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0
Total Volume	0	3	1	0	4	0	0	0	0	0	0	2	5	0	7	2	0	0	0	2	0	0	3	0	3
% App. Total	0	75	25	0		0	0	0	0		0	28.6	71.4	0		100	0	0	0		0	0	100	0	
PHF	.000	.375	.250	.000	.500	.000	.000	.000	.000	.000	.000	.500	.417	.000	.583	.500	.000	.000	.000	.500	.000	.000	.250	.000	.250

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Accurate Counts
978-664-2565

File Name : 93610002
Site Code : 93610002
Start Date : 5/4/2022
Page No : 10

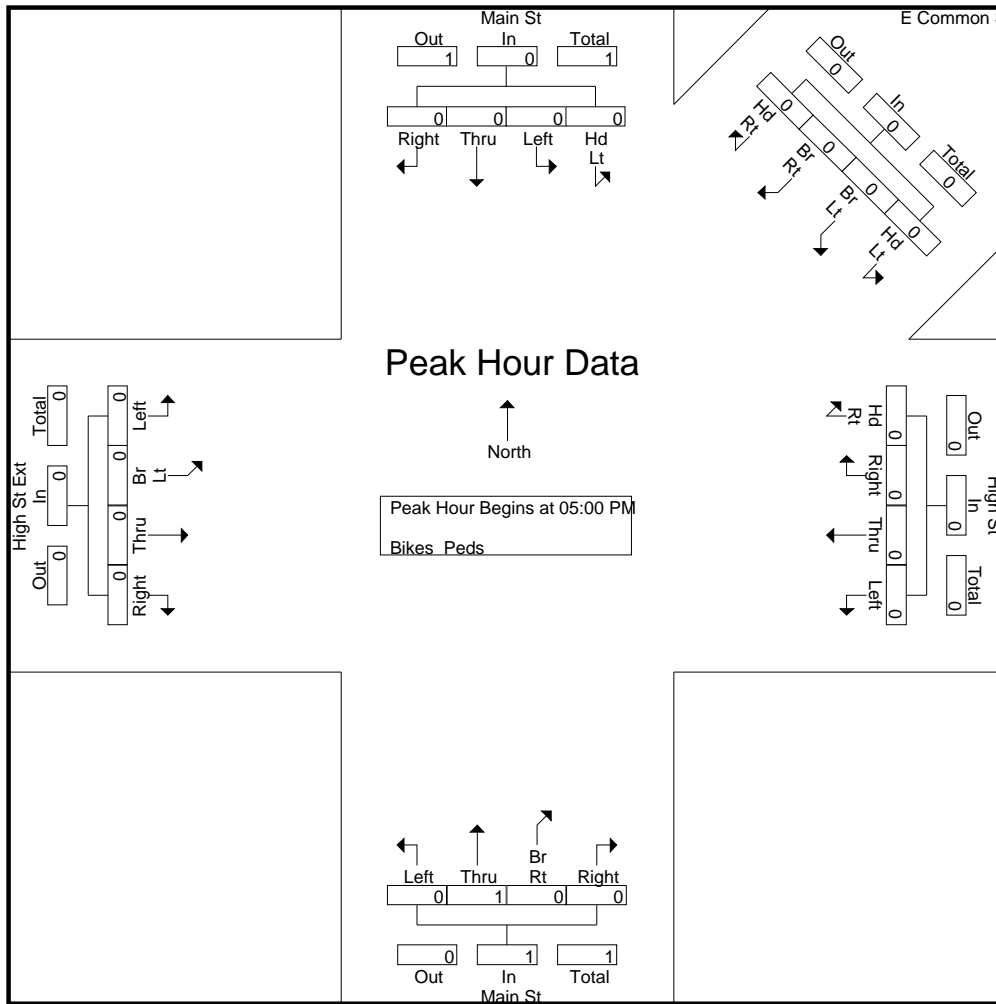
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain

Groups Printed- Bikes Peds

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Exclu. Total	Inclu. Total	Int. Total	
	Hd Lt	Left	Thru	Right	Peds	Hd Lt	Br Lt	Br Rt	Hd Rt	Peds	Left	Thru	Right	Hd Rt	Peds	Left	Thru	Br Rt	Right	Peds	Left	Br Lt	Thru	Right	Peds				
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	2	1	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	4	5	1	6
Approch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0				
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	83.3	16.7		

Start Time	Main St From North					E Common St From Northeast					High St From East					Main St From South					High St Ext From West					Int. Total				
	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total					
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																														
Peak Hour for Entire Intersection Begins at 05:00 PM																														
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0					
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.250		

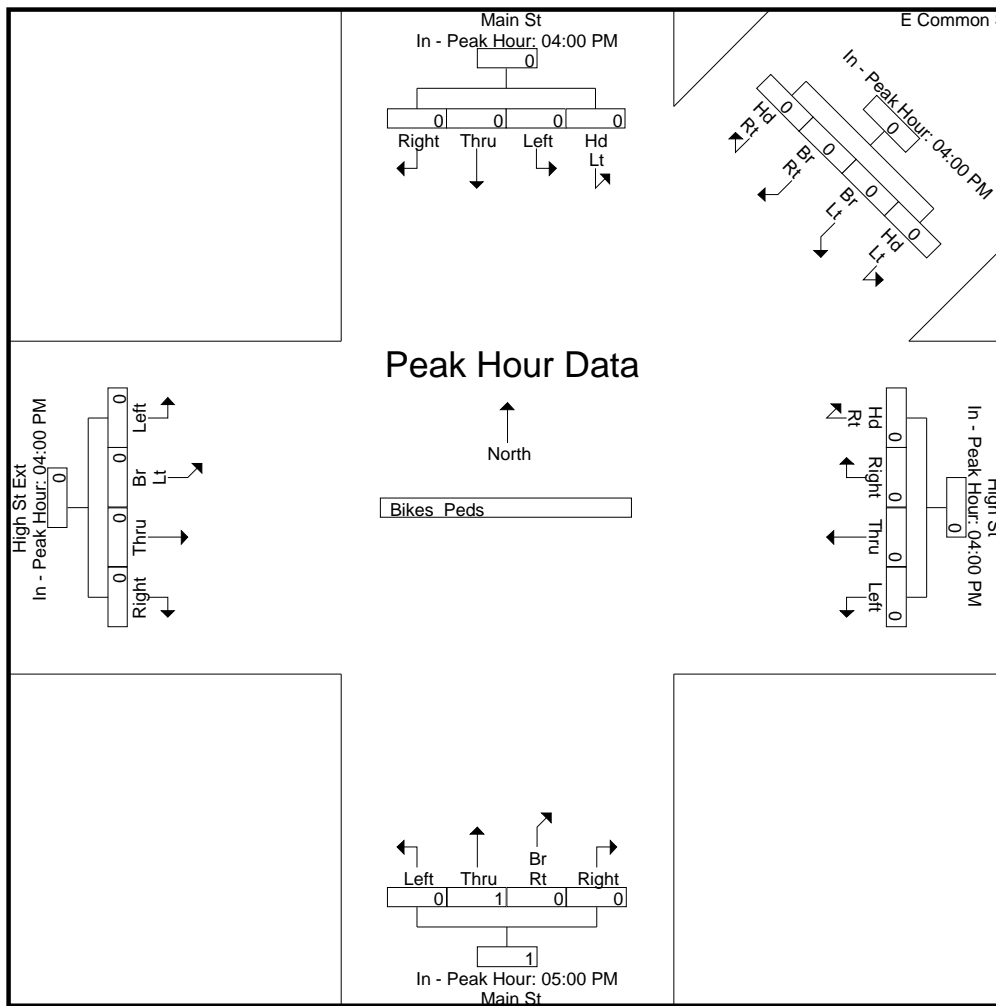
N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:00 PM					05:00 PM					04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : High St / High St Ext.
City/State : Topsfield, MA
Weather : Rain



SEASONAL ADJUSTMENT DATA



Massachusetts Highway Department

5085: Monthly Hourly Volume for May 2019

Location ID: 5085
County:
Functional Class: 1
Location:

Seasonal Factor Group: U1-Essex
Daily Factor Group:
Axle Factor Group: U1-Essex
Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status	
1																											
2	421	243	239	345	1116	3679	5289	6910	6148	4485	4067	4188	4230	4557	5311	6401	6997	7180	4829	3556	2388	1932	1364	866	86741	Accepted	
3	511	343	285	373	1019	3313	5063	6536	5621	4606	4570	5032	5000	5399	6174	7012	7574	7424	5449	3945	2813	2065	1681	1344	93152	Accepted	
4	735	413	258	269	445	981	1924	3032	4208	4958	5803	6040	5762	5848	5817	6110	5727	5457	4256	3234	2677	2343	2107	1482	79886	Accepted	
5	777	403	207	236	296	543	1168	1927	2585	3870	5228	6179	6351	6225	6148	6013	5708	5037	4181	3310	2367	1462	1017	667	71905	Accepted	
6	353	234	217	373	1218	4003	5478	7420	6179	4460	4219	4280	4187	4360	5154	6346	6690	6976	4572	3116	2094	1567	1372	714	85582	Accepted	
7	391	247	228	349	1155	3902	5667	7146	6182	4561	4092	4103	4167	4434	5386	6322	6852	6966	4800	3425	2320	1708	1168	678	86249	Accepted	
8	439	253	242	350	1192	3795	5592	7095	6142	4573	4283	4195	4331	4496	5533	6525	7092	7148	5150	3730	2666	1972	1297	828	88919	Accepted	
9	474	285	232	381	1141	3816	5615	7089	6422	4695	4425	4391	4387	4858	5828	6632	7419	7493	5471	3913	2884	2018	1422	1215	92506	Accepted	
10	694	330	244	355	1088	3159	5039	6683	5607	4786	4786	4953	5114	5445	5822	6504	7414	8055	7695	5854	4345	3045	2351	1784	1503	97869	Accepted
11	794	413	251	283	497	1124	2212	3421	4788	5790	6509	6610	6403	6100	6226	6274	6161	6056	5216	4234	3288	2716	2106	1473	88945	Accepted	
12	743	395	217	227	260	524	1018	1719	2693	4460	6165	7247	7433	6859	6568	6445	6486	5961	5645	4500	3081	1783	1061	618	82108	Accepted	
13	345	214	211	429	1245	3991	5703	7053	6105	4673	4436	4412	4424	4469	5660	6741	7302	7273	4900	3160	2121	1632	995	704	88198	Accepted	
14	423	234	251	368	1138	3864	5374	6965	6362	4642	4168	4347	4304	4493	5357	6442	7161	7133	5065	3409	2260	1796	1277	1049	87882	Accepted	
15	567	308	268	352	1181	3794	5466	6950	6171	4667	4482	4524	4500	4866	5879	6970	7359	7621	5438	3632	2793	2035	1452	1145	92420	Accepted	
16	655	314	270	402	1176	3850	5506	7014	6196	4975	4729	4583	4712	4868	5791	6662	7352	7492	5495	4093	2901	2172	1451	1062	93721	Accepted	
17	543	355	243	370	1125	3358	4985	6469	5859	4832	4798	5180	5429	5734	6425	7119	7784	7856	5633	4388	3142	2471	1928	1554	97580	Accepted	
18	700	448	290	271	530	1082	2388	3871	4686	5551	6269	6514	6304	6227	6170	6316	6097	5948	4969	3972	3339	2717	2366	1591	88616	Accepted	
19	815	490	248	249	328	674	1353	2304	3399	4844	6197	7163	6836	6598	6627	6648	6491	6201	5373	4305	3033	1871	1182	809	84038	Accepted	
20	388	281	267	418	1219	3981	5545	7043	6151	4589	4376	4620	4504	4724	5622	6543	6977	7099	4719	3362	2519	1687	1034	757	88425	Accepted	
21	413	246	253	394	1162	4023	5567	7247	6366	4573	4222	4511	4350	4646	5569	6499	6958	7316	5245	3771	2608	1832	1281	783	89835	Accepted	
22	404	290	253	399	1177	3914	5604	6977	6429	4753	4435	4573	4599	4760	5637	6811	7504	7411	5399	3998	2879	2144	1386	968	92704	Accepted	
23	474	262	270	384	1182	3872	5536	7021	6216	4938	4805	4919	4994	5354	6088	7207	7702	7832	5844	4440	3301	2446	1734	1157	97978	Accepted	
24	719	350	273	395	1069	3242	4972	6508	5864	5249	5865	6213	6663	6861	7515	8171	8114	7611	5838	4818	3647	2464	1841	1280	105542	Accepted	
25	758	445	257	261	460	1098	2311	3839	5046	6262	6743	6540	6447	6126	6058	5915	5536	5107	4544	3746	3124	2497	1901	1285	86306	Accepted	
26	869	427	243	205	289	639	1169	1930	3122	4857	6282	6694	6733	6295	6332	5973	5958	5739	5420	4825	4103	3065	2104	1223	84496	Accepted	
27																											
28	508	237	219	409	1299	4184	5861	7414	6397	4945	4728	4995	4931	5199	5936	6506	7050	7029	4784	3296	2381	1631	1034	779	91752	Accepted	
29	453	294	277	381	1176	3838	5629	7117	6479	4669	4431	4463	4664	4770	5802	6847	7556	7588	5208	3648	2533	1808	1319	987	91937	Accepted	
30	788	315	272	383	1183	3779	5582	7179	6361	4788	4626	4800	4810	5136	5797	6864	7563	7487	5340	3985	2922	2161	1490	1008	94619	Accepted	
31	657	386	275	378	1035	3379	5187	6475	5966	5023	5188	5493	5683	6049	6607	7598	8129	8060	5904	4505	3387	2488	1936	1275	101063	Accepted	
																										90033.59	May ADT
																										87159	2019 AADT
																										0.031928	3.2% above

COVID ADJUSTMENT DATA



Massachusetts Highway Department

35: Monthly Hourly Volume for May 2019

Location ID: 35	Seasonal Factor Group: UR2
County: Essex	Daily Factor Group:
Functional Class: 2	Axle Factor Group: UR2
Location: YANKEE DIVISION HIGHWAY	Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1	182	128	81	106	329	1250	2431	4100	4191	3100	2852	2851	3098	3037	3767	4135	4154	4246	3266	2277	1641	1254	725	397	53598	Accepted
2	203	118	80	111	296	1213	2390	4296	3933	3139	2912	3068	3056	3070	3744	4079	3960	4225	3109	2398	1557	1238	787	465	53447	Accepted
3	248	136	91	121	311	1162	2409	4149	3994	3075	3102	3273	3437	3483	4106	4265	3961	4103	3282	2335	1667	1465	1021	736	55932	Accepted
4	346	218	148	97	167	393	919	1784	2159	2677	3221	3737	3960	3886	3648	3769	3552	3284	2602	1981	1547	1366	1211	779	47451	Accepted
5	439	235	143	84	91	213	487	990	1471	2047	2749	3356	3645	3745	3511	3281	3115	2726	2327	1666	1371	852	560	347	39451	Accepted
6	191	103	76	114	316	1242	2486	4308	3986	3019	2894	2997	2950	2886	3651	4308	4130	4049	3184	2127	1374	990	707	410	52498	Accepted
7	196	88	81	112	326	1273	2605	4477	4073	3075	2932	3000	3027	3096	3784	4227	4174	4298	3166	2241	1548	1162	580	412	53953	Accepted
8	181	89	76	105	299	1274	2554	4348	3805	3446	3001	3049	3165	3212	3761	4190	4488	4244	3411	2343	1757	1237	857	470	55362	Accepted
9	250	141	93	141	333	1266	2551	4295	4165	3213	2867	3027	3184	3227	3757	4252	4241	4402	3429	2455	1786	1232	800	587	55694	Accepted
10	286	133	102	124	281	1108	2360	4130	3912	3164	3141	3480	3621	3465	3912	4330	4238	4098	3194	2505	1764	1472	1197	698	56715	Accepted
11	437	217	120	110	197	446	1057	1767	2569	3060	3595	3969	4254	4166	4259	4023	3931	3806	3304	2415	1953	1589	1232	821	53297	Accepted
12	396	247	123	82	115	220	476	923	1464	2147	2945	3651	4067	3842	3822	3466	3295	2819	2607	1977	1480	808	548	332	41852	Accepted
13	192	91	67	104	328	1229	2510	4318	3980	3047	2808	2967	3084	3053	3660	4163	4216	4070	2932	2132	1365	1021	573	372	52282	Accepted
14	192	86	71	119	329	1237	2430	4230	3982	2994	2884	2926	3067	3140	3676	4161	4244	4319	3264	2208	1620	1167	711	447	53504	Accepted
15	235	110	88	113	325	1236	2373	4271	4069	3167	3027	3036	3169	3242	3909	4347	4529	4365	3388	2467	1783	1294	732	525	55800	Accepted
16	298	127	99	114	351	1269	2514	4287	4116	3299	3238	3227	3353	3364	3949	4343	4417	4386	3424	2559	1786	1325	916	541	57302	Accepted
17	261	159	98	131	325	1133	2319	3999	3951	3197	3233	3464	3647	3714	4154	4378	4368	3923	3350	2450	1799	1620	1116	755	57544	Accepted
18	431	202	131	108	183	467	1084	1892	2745	3504	3493	3821	4250	4388	4109	3981	3985	3856	3218	2489	1942	1686	1350	794	54109	Accepted
19	406	242	125	84	137	297	674	1194	1797	2499	3007	3556	3696	3579	3604	3715	3401	3043	2675	2229	1597	882	640	410	43489	Accepted
20	180	112	115	110	294	1194	2343	4135	3964	3044	2917	3146	3063	3117	3767	4082	4239	4061	2874	2057	1583	1072	585	400	52454	Accepted
21	157	104	84	123	405	1283	2539	4231	4151	3230	2972	3120	3150	3260	3780	4318	4282	4247	3268	2456	1712	1209	677	394	55152	Accepted
22	227	112	87	132	356	1235	2467	4223	3987	3281	3070	3146	3224	3249	3761	4243	4448	4135	3382	2610	1838	1335	833	473	55854	Accepted
23	257	151	70	126	330	1216	2510	4279	4026	3244	3130	3333	3372	3476	3882	4569	4298	4261	3258	2626	1796	1340	896	509	56955	Accepted
24	283	119	72	116	303	1064	2255	3897	3875	3177	3292	3550	3911	3751	4154	4547	4201	3768	3031	2592	1721	1414	992	618	56703	Accepted
25	350	186	112	103	160	433	950	1696	2480	2934	3374	3522	3790	4082	3983	3899	3644	3544	2785	2244	1680	1376	978	629	48934	Accepted
26	310	185	76	66	101	252	560	1042	1860	2858	3639	3929	4332	4512	4580	4383	4279	3614	3317	2629	2277	1504	920	566	51791	Accepted
27	324	172	63	78	125	333	654	1008	1552	2336	2880	3481	3655	3565	3498	3392	3189	3040	2359	2046	1439	893	544	489	41115	Accepted
28	202	121	64	109	366	1303	2560	4290	4225	3162	2958	2990	3069	3286	3751	4114	4007	3832	2796	2132	1324	944	550	399	52554	Accepted
29	198	121	96	104	343	1328	2461	4256	4093	3206	2988	3033	3155	3119	3871	4272	4265	4240	3343	2375	1648	1119	664	530	54828	Accepted
30	332	117	96	129	348	1252	2568	4334	4108	3197	2997	3170	3177	3362	3970	4492	4422	4205	3340	2486	1751	1286	727	525	56391	Accepted
31	271	166	89	121	350	1187	2413	4094	4051	3258	3099	3377	3622	3698	4175	4531	4307	4108	3397	2560	1923	1493	1150	766	58206	Accepted

52716.68 May 2019 ADT

Massachusetts Highway Department

35: Monthly Hourly Volume for May 2022

Location ID: 35
County: Essex
Functional Class: 2
Location: YANKEE DIVISION HIGHWAY

Seasonal Factor Group: UR2
Daily Factor Group:
Axle Factor Group: UR2
Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status	
1	343	176	111	82	130	294	541	1084	1574	2247	3028	3592	3944	3852	3717	3534	3446	2994	2546	1952	1268	852	494	306	42107	Accepted	
2	133	91	82	83	269	953	2214	3919	3589	2852	2725	2737	2752	2940	3549	4152	3953	3592	2493	1705	1152	732	458	279	47404	Accepted	
3																											
4	185	105	121	106	283	889	2142	3842	3724	2879	2743	2888	2988	3089	3505	3873	3928	3583	2782	1761	1268	972	570	358	48584	Accepted	
5	177	119	122	105	316	950	2156	3948	3799	3004	3043	3083	3308	3391	3913	4252	4294	3989	3014	2386	1604	1098	668	361	53100	Accepted	
6	250	104	121	110	265	895	2088	3663	3519	2927	2942	3268	3497	3455	3920	4317	4115	3799	2993	2214	1454	1272	923	659	52770	Accepted	
7	347	212	108	96	159	371	833	1661	2146	2981	3341	3834	4165	3789	3766	3685	3302	3040	2568	2074	1518	1291	951	657	46895	Accepted	
8	314	210	88	69	83	246	467	909	1422	2270	3007	3559	3770	3949	3651	3524	3429	2899	2512	2036	1471	894	501	275	41555	Accepted	
9	134	70	64	86	285	910	2229	3790	3632	2883	2772	2791	2956	3049	3634	4047	3950	3866	2712	1952	1293	756	530	317	48708	Accepted	
10	167	107	96	95	310	964	2304	4090	3761	3038	2825	2980	3109	3177	3676	4237	4149	3883	3082	2135	1466	1006	545	384	51586	Accepted	
11	187	99	114	90	303	971	2263	3886	3905	2963	2855	3098	3143	3261	3915	4383	4339	3920	3112	2178	1490	1020	673	391	52559	Accepted	
12	205	108	121	107	295	961	2179	4017	3596	2998	2969	3195	3289	3313	3872	4380	4349	4171	3105	2306	1532	1113	680	426	53287	Accepted	
13	217	159	122	113	269	955	1999	3688	3478	3100	3232	3439	3739	3800	4209	4625	4155	3806	3274	2386	1745	1404	984	684	55582	Accepted	
14	326	187	126	101	164	483	899	1832	2576	3570	4038	4068	4598	4868	4567	4382	4232	3834	3260	2526	1943	1424	1020	653	55677	Accepted	
15	327	193	113	71	131	293	568	952	1528	2322	2952	3481	3707	3678	3515	3263	3003	2559	2358	1911	1370	871	533	332	40031	Accepted	
16	166	112	77	108	281	1011	2265	3772	3715	2896	2881	2814	2995	3073	3668	4240	4083	3727	2758	1919	1216	732	466	274	49249	Accepted	
17	146	94	109	97	312	1018	2395	3748	3833	3116	3005	2926	3116	3251	3721	4109	4156	3710	2834	2075	1433	869	527	388	50988	Accepted	
18	183	127	126	111	295	967	2322	3978	3885	3073	3139	3135	3094	3188	3776	4244	4045	3910	3072	2125	1471	1131	649	401	52447	Accepted	
19	193	111	126	122	298	965	2238	3899	3757	3140	2783	2877	3153	3206	3738	4266	4099	3783	2822	1985	1398	952	572	432	50915	Accepted	
20	183	124	144	112	278	940	2087	3685	3357	3059	2982	3343	3620	3479	4009	4414	4315	3887	3209	2398	1834	1341	1029	665	54494	Accepted	
21	358	195	128	107	160	474	881	1747	2644	3296	3679	4067	4340	4487	4439	4324	4313	3860	3245	2473	2015	1527	942	754	54455	Accepted	
22	402	202	135	106	165	322	626	1524	2270	3165	3788	4122	4239	4284	4339	4185	4038	3741	3195	2444	1750	1235	643	358	51278	Accepted	
23	177	124	84	108	267	963	2236	3832	3807	2889	2905	3155	2960	3181	3664	4140	4142	3908	2746	2074	1381	825	494	358	50420	Accepted	
24	189	119	121	117	300	984	2376	3971	3842	3027	2906	2923	3027	3060	3664	4197	4108	3963	3006	2046	1485	1067	561	350	51409	Accepted	
25	177	92	132	109	289	1005	2421	4078	3975	3199	2927	3084	3204	3206	3742	4284	4373	3921	3181	2284	1644	1093	643	394	53457	Accepted	
26	171	103	106	129	281	974	2309	3836	3752	3012	2929	3084	3261	3433	3940	4320	4111	3866	3054	2173	1590	1219	834	427	52914	Accepted	
27	241	133	113	123	256	906	2019	3518	3401	3047	3228	3597	3718	3540	4040	4045	3828	3430	2745	2050	1559	1127	843	639	52146	Accepted	
28	419	195	106	100	132	407	772	1330	1793	2367	3005	3323	3369	3474	3263	3166	3071	2545	2050	1633	1290	1113	839	601	40363	Accepted	
29	295	184	101	81	137	340	569	1010	1642	2475	3265	3722	3972	3921	3914	3750	3504	3261	3033	2501	1951	1203	790	584	46205	Accepted	
30	345	155	125	68	135	273	611	1207	1839	2808	3568	3871	3891	3797	3776	3790	3752	3554	3015	2670	1899	1123	626	332	47230	Accepted	
31	184	99	65	92	299	991	2338	3916	3865	3148	2975	3123	3313	3306	3742	4238	4142	3879	2938	2061	1434	899	500	411	51958	Accepted	
																										49992.43	May 2022 ADT

2019 Average Count Data – Sta. 35

May ADT: 52,716

2022 Average Count Data – Sta. 35

May ADT: 49,992

COVID Adjustment

$$1 - \frac{52,716}{49,992} = -0.05448$$

5.5% below Pre-COVID conditions

VEHICLE TRAVEL SPEED DATA



Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA
 Direction: WB,

93610001

5/4/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	3
1:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
2:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	1	1	5	1	0	0	0	0	8
4:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
5:00	0	0	0	0	0	0	1	3	3	3	3	1	0	0	14
6:00	0	0	0	0	0	5	1	18	22	22	8	1	0	0	77
7:00	0	0	7	4	6	16	19	23	34	35	11	4	1	0	160
8:00	0	0	17	13	19	24	52	49	33	20	3	0	0	0	230
9:00	0	0	3	3	6	13	25	53	47	26	8	0	0	0	184
10:00	0	0	1	0	1	6	22	41	46	16	3	1	1	0	138
11:00	0	0	0	4	3	11	16	33	32	23	6	2	0	0	130
12:00 PM	0	0	7	3	3	9	36	43	54	29	4	1	0	0	189
1:00	0	0	9	1	9	4	16	35	50	28	7	4	0	0	163
2:00	0	0	19	11	12	24	42	54	57	22	8	1	0	0	250
3:00	0	0	76	32	55	24	49	66	63	23	4	0	0	0	392
4:00	0	0	83	36	58	26	63	70	54	29	2	0	0	0	421
5:00	0	0	76	38	26	19	44	55	59	33	6	1	0	0	357
6:00	0	0	2	5	6	8	20	35	67	24	10	3	0	0	180
7:00	0	0	0	0	1	1	10	24	47	24	6	1	0	0	114
8:00	0	0	0	0	1	1	5	15	22	10	1	0	0	0	55
9:00	0	0	0	0	3	0	3	11	19	4	1	0	0	0	41
10:00	0	0	0	0	0	1	1	7	8	6	5	0	0	0	28
11:00	0	0	0	0	0	0	2	1	5	3	0	0	0	0	11
Total	0	0	300	150	209	192	429	639	728	383	96	21	2	0	3149

Percentile 15th 50th 85th 95th
 Speed 12 22 27 30
 Mean Speed (Average) 21.0
 10 MPH Pace Speed 18-27
 Number in Pace 1917
 Percent in Pace 60.9%
 Number > 24 MPH 1230
 Percent > 24 MPH 39.1%

Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA
 Direction: EB,

93610001

5/4/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
1:00	0	0	0	0	0	0	0	1	1	0	2	0	1	0	5
2:00	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
3:00	0	0	0	0	0	0	0	0	0	0	3	1	1	0	5
4:00	0	0	0	0	0	0	0	0	1	2	5	7	5	0	20
5:00	0	0	0	0	0	0	1	0	9	13	23	8	3	1	58
6:00	0	0	0	0	0	1	0	5	22	72	98	31	14	1	244
7:00	0	0	0	0	0	0	4	9	54	135	199	35	19	1	456
8:00	0	0	0	0	0	1	2	10	51	123	119	34	13	2	355
9:00	0	0	0	0	0	3	0	11	32	62	58	8	3	2	179
10:00	0	0	0	0	1	1	7	7	42	60	45	10	2	0	175
11:00	0	0	1	1	0	0	2	16	25	41	29	6	2	0	123
12:00 PM	0	0	0	0	0	1	3	16	45	60	41	14	1	1	182
1:00	0	0	0	0	0	0	0	8	31	57	49	10	4	0	159
2:00	0	0	0	0	0	1	3	26	44	57	35	10	4	0	180
3:00	0	0	0	0	2	1	4	8	40	58	52	14	5	0	184
4:00	0	0	0	0	0	0	2	7	33	65	53	12	7	1	180
5:00	0	0	0	0	1	1	0	1	35	57	70	18	5	3	191
6:00	0	0	0	0	0	0	0	0	10	20	42	19	3	0	94
7:00	0	0	0	0	0	0	0	2	9	19	21	5	2	1	59
8:00	0	0	0	0	0	0	1	3	13	16	15	1	0	0	49
9:00	0	0	0	0	0	0	1	3	2	12	11	2	0	0	31
10:00	0	0	0	0	0	0	0	0	4	4	4	2	1	0	15
11:00	0	0	0	0	0	0	0	0	2	2	0	0	1	0	5
Total	0	0	1	1	4	10	30	133	505	935	976	248	96	13	2952

Percentile 15th 50th 85th 95th
 Speed 25 30 33 35
 Mean Speed (Average) 29.9
 10 MPH Pace Speed 24-33
 Number in Pace 2495
 Percent in Pace 84.5%
 Number > 24 MPH 2773
 Percent > 24 MPH 93.9%

Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA
 Direction: EB,

93610001

5/5/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
1:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
2:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
3:00	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
4:00	0	0	0	0	0	0	0	0	0	3	12	3	5	1	24
5:00	0	0	0	0	0	0	0	1	10	14	34	3	3	2	67
6:00	0	0	0	0	0	0	0	4	27	79	107	34	9	0	260
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8:00	0	0	2	1	0	2	10	22	83	135	78	8	4	1	346
9:00	0	0	0	0	0	0	0	6	28	57	76	17	4	1	189
10:00	0	0	0	0	0	0	0	7	39	49	57	15	4	2	173
11:00	0	0	0	0	0	1	1	6	32	63	43	12	5	1	164
12:00 PM	0	0	0	0	1	0	1	22	48	53	52	11	3	0	191
1:00	0	0	0	0	0	2	3	5	43	49	45	14	2	1	164
2:00	0	0	0	0	0	2	5	18	54	56	52	11	6	1	205
3:00	0	0	1	0	0	1	5	10	46	75	56	22	6	0	222
4:00	0	0	0	3	0	0	3	12	47	85	66	12	3	3	234
5:00	0	0	0	0	0	0	1	3	36	75	75	16	6	1	213
6:00	0	0	0	0	0	0	3	2	25	43	49	14	8	1	145
7:00	0	0	0	0	0	0	1	3	12	25	29	9	4	1	84
8:00	0	0	0	0	0	0	1	4	9	21	20	3	2	2	62
9:00	0	0	0	0	0	0	0	0	8	11	11	3	0	0	33
10:00	0	0	0	0	0	0	0	1	5	6	12	0	0	0	24
11:00	0	0	0	0	0	0	1	0	2	3	3	0	0	0	9
Total	0	0	3	4	1	10	39	137	602	1032	1071	261	85	21	3266

Percentile	15th
Speed	25
Mean Speed (Average)	30.0
10 MPH Pace Speed	24-33
Number in Pace	2788
Percent in Pace	85.4%
Number > 24 MPH	3072
Percent > 24 MPH	94.1%

Grand Total	0	0	4	5	5	20	69	270	1107	1967	2047	509	181	34	6218
Stats	Percentile	15th	50th	85th	95th										
	Speed	25	30	33	35										
	Mean Speed (Average)	30.0													
	10 MPH Pace Speed	24-33													
	Number in Pace	5283													
	Percent in Pace	85.0%													
	Number > 24 MPH	5845													
	Percent > 24 MPH	94.0%													

Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA
 Direction: Combined

93610001

5/4/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	1	0	1	1	1	0	0	4
1:00	0	0	0	0	0	0	0	2	1	1	2	0	1	0	7
2:00	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3
3:00	0	0	0	0	0	0	1	1	5	1	3	1	1	0	13
4:00	0	0	0	0	0	0	0	0	2	2	5	7	5	0	21
5:00	0	0	0	0	0	0	2	3	12	16	26	9	3	1	72
6:00	0	0	0	0	0	6	1	23	44	94	106	32	14	1	321
7:00	0	0	7	4	6	16	23	32	88	170	210	39	20	1	616
8:00	0	0	17	13	19	25	54	59	84	143	122	34	13	2	585
9:00	0	0	3	3	6	16	25	64	79	88	66	8	3	2	363
10:00	0	0	1	0	2	7	29	48	88	76	48	11	3	0	313
11:00	0	0	1	5	3	11	18	49	57	64	35	8	2	0	253
12:00 PM	0	0	7	3	3	10	39	59	99	89	45	15	1	1	371
1:00	0	0	9	1	9	4	16	43	81	85	56	14	4	0	322
2:00	0	0	19	11	12	25	45	80	101	79	43	11	4	0	430
3:00	0	0	76	32	57	25	53	74	103	81	56	14	5	0	576
4:00	0	0	83	36	58	26	65	77	87	94	55	12	7	1	601
5:00	0	0	76	38	27	20	44	56	94	90	76	19	5	3	548
6:00	0	0	2	5	6	8	20	35	77	44	52	22	3	0	274
7:00	0	0	0	0	1	1	10	26	56	43	27	6	2	1	173
8:00	0	0	0	0	1	1	6	18	35	26	16	1	0	0	104
9:00	0	0	0	0	3	0	4	14	21	16	12	2	0	0	72
10:00	0	0	0	0	0	1	1	7	12	10	9	2	1	0	43
11:00	0	0	0	0	0	0	2	1	7	5	0	0	1	0	16
Total	0	0	301	151	213	202	459	772	1233	1318	1072	269	98	13	6101

Percentile	15th
Speed	18
Percentile	50th
Speed	26
Percentile	85th
Speed	31
Percentile	95th
Speed	34
Mean Speed (Average)	25.3
10 MPH Pace Speed	23-32
Number in Pace	3870
Percent in Pace	63.4%
Number > 24 MPH	4003
Percent > 24 MPH	65.6%

Location : High Street
 Location : West of So Common St
 City/State: Topsfield, MA
 Direction: Combined

93610001

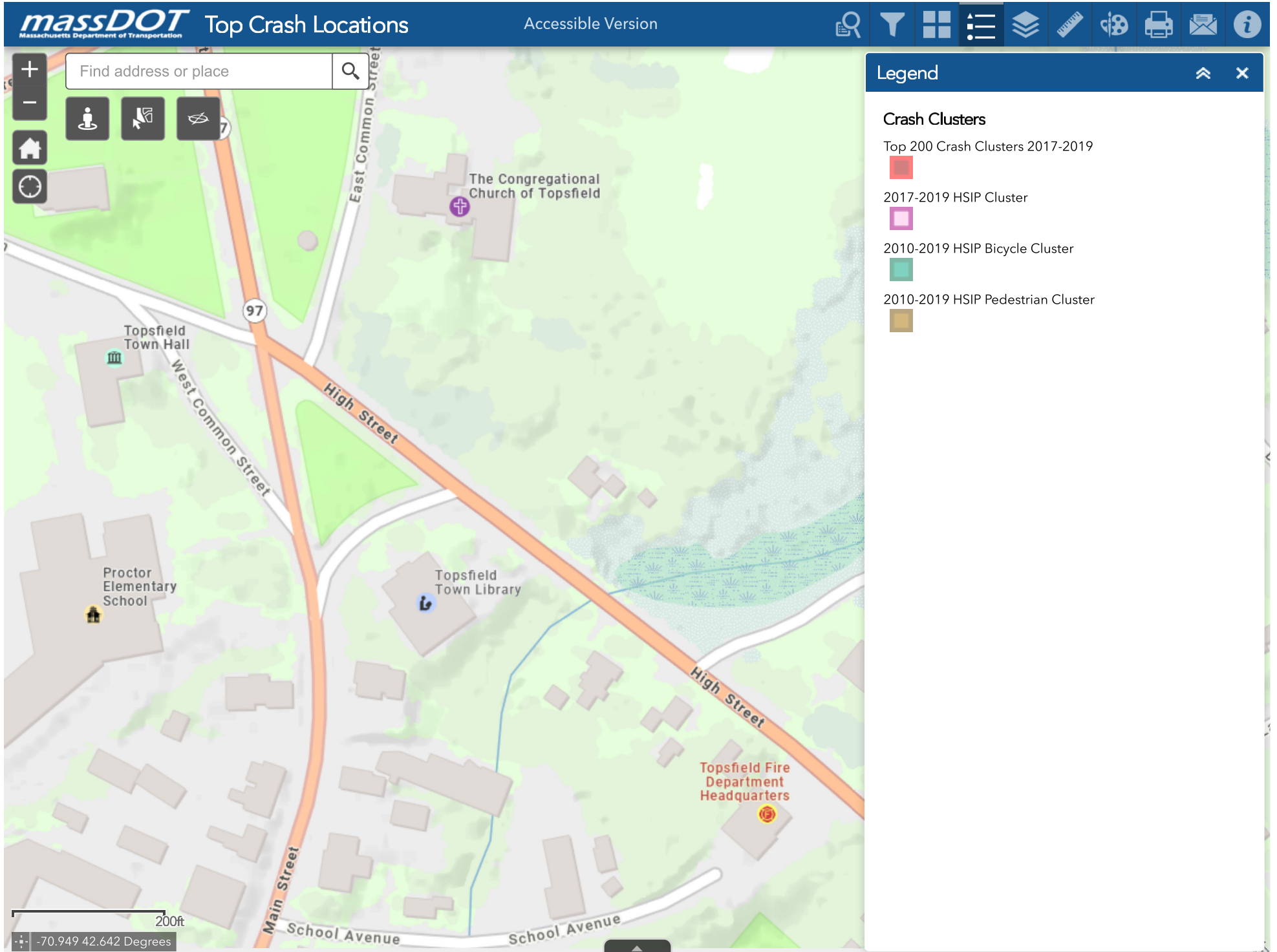
5/5/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	1	2	2	4	1	0	0	0	10
1:00	0	0	0	0	0	0	1	0	3	2	0	0	1	0	7
2:00	0	0	0	0	0	0	0	2	2	1	0	0	0	0	5
3:00	0	0	0	0	1	0	1	1	2	1	0	0	1	2	9
4:00	0	0	0	0	0	1	0	1	1	3	12	4	5	1	28
5:00	0	0	0	0	0	0	0	2	13	22	37	3	3	2	82
6:00	0	0	0	0	0	0	7	13	48	99	118	35	9	0	329
7:00	0	0	4	9	5	19	21	43	106	170	199	56	11	1	644
8:00	0	0	27	3	17	24	40	67	133	149	85	8	4	1	558
9:00	0	0	2	4	5	11	26	40	71	78	84	21	4	1	347
10:00	0	0	1	3	7	14	19	59	88	67	61	16	4	2	341
11:00	0	0	1	0	5	6	39	37	83	86	54	12	5	1	329
12:00 PM	0	0	5	3	12	13	39	63	90	72	59	11	3	0	370
1:00	0	0	3	6	6	12	33	59	97	71	51	15	2	1	356
2:00	0	0	27	8	19	41	36	64	122	86	54	13	7	1	478
3:00	0	0	94	46	38	37	60	62	96	98	59	23	6	0	619
4:00	0	0	167	56	41	26	43	63	87	107	74	12	3	3	682
5:00	0	0	142	37	18	21	53	59	84	101	81	16	6	1	619
6:00	0	0	3	7	14	12	42	52	68	80	57	16	8	1	360
7:00	0	0	0	1	2	7	11	34	59	46	40	11	5	1	217
8:00	0	0	3	2	1	5	20	30	37	37	25	3	2	2	167
9:00	0	0	0	0	1	1	2	17	21	22	17	3	0	0	84
10:00	0	0	0	0	0	0	0	8	16	20	18	0	0	0	62
11:00	0	0	0	0	0	1	2	5	10	12	4	0	0	0	34
Total	0	0	479	185	192	251	496	783	1339	1434	1190	278	89	21	6737

Percentile	15th	50th	85th	95th
Speed	17	26	31	34
Mean Speed (Average)	25.0			
10 MPH Pace Speed	23-32			
Number in Pace	4210			
Percent in Pace	62.5%			
Number > 24 MPH	4351			
Percent > 24 MPH	64.6%			

Grand Total	0	0	780	336	405	453	955	1555	2572	2752	2262	547	187	34	12838
Stats	Percentile				15th	50th	85th	95th							
	Speed				17	26	31	34							
	Mean Speed (Average)				25.1										
	10 MPH Pace Speed				23-32										
	Number in Pace				8081										
	Percent in Pace				62.9%										
	Number > 24 MPH				8354										
	Percent > 24 MPH				65.1%										

MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING





GENERAL BACKGROUND TRAFFIC GROWTH



Proposed Residential Development
Topsfield, MA

General Background Traffic Growth - Daily Traffic Volumes

CITY/TOWN	ROUTE/STREET	LOCATION	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth Rate
Boxford	Endicott Road	at the Topsfield Town Line							5,609	5,957	6,975	6,996	6,968	5.80%
Topsfield	Boxford Road	at the Topsfield Town Line					4,360	4,495	4,598			4,901	4,881	1.66%
Boxford	Middleton Road	south of Lockwood Lane								1,312	1,313	1,327	1,343	0.78%
ID# 5085			76,773	61,287	76,353	76,525	77,120	78,477	80,535	83,276	83,520	84,342	87,159	1.78%
ID# 5184			79,402	80,422	78,974	85,254	79,145	81,046	85,713	85,636	86,037	86,887	87,635	1.07%
Boxford	Georgetown Road	north of Middleton Road					3,087	3,183	3,256	3,458	2,645	2,653	2,642	-2.00%
Boxford	Lawrence Road	west of Main Street					3,745	3,861	3,950	4,195	4,266	4,422	4,404	2.76%
Boxford	Main Street	north of Middleton Road							6,062	6,080	6,086	6,153	6,227	0.67%
Boxford	Topsfield Road	west of Cross Street					6,900	7,114	7,278			7,303	7,274	1.34%
Boxford	Elm Street	south of Elm Street Extension								2,862	2,911	2,920	2,908	0.54%
														1.44%

TRIP-GENERATION CALCULATIONS





ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

TGM Appendices

Support Documents

Add Users

Comments

Add-ons to do more

Try OTISS Pro

ITETripGen Web-based App

Graph Look Up

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
252

LAND USE GROUP:
(200-299) Residential

LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

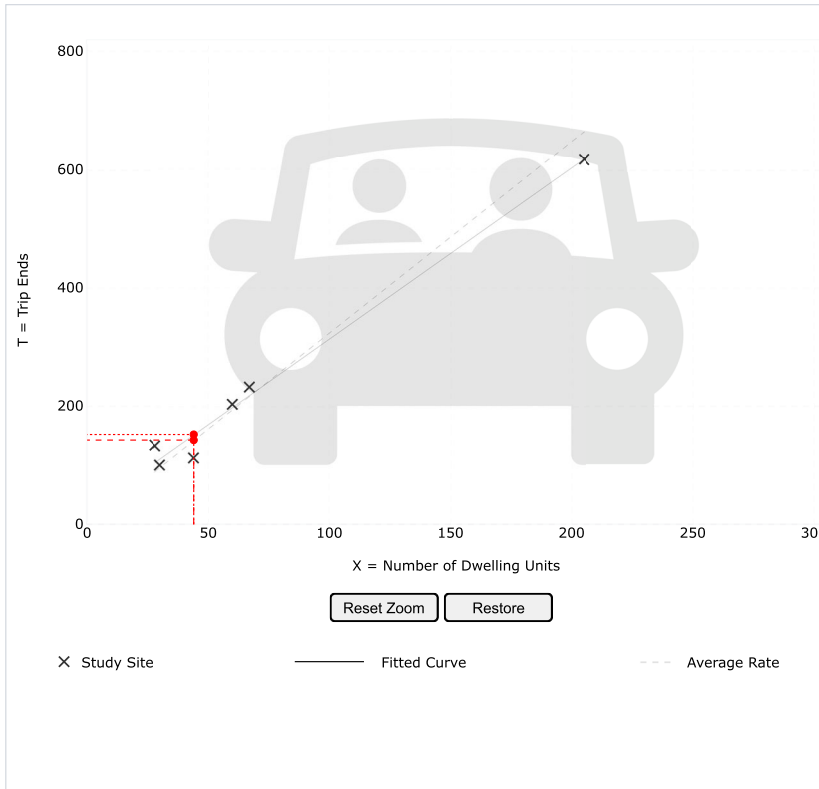
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
44 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:	Senior Adult Housing - Multifamily (252) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	6
Avg. Num. of Dwelling Units:	72
Average Rate:	3.24
Range of Rates:	2.59 - 4.79
Standard Deviation:	0.53
Fitted Curve Equation:	$T = 2.89(X) + 24.82$
R²:	0.99
Directional Distribution:	50% entering, 50% exiting
Calculated Trip Ends:	Average Rate: 143 (Total), 71 (Entry), 72 (Exit) Fitted Curve: 152 (Total), 76 (Entry), 76 (Exit)





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LAND USE GROUP:
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LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

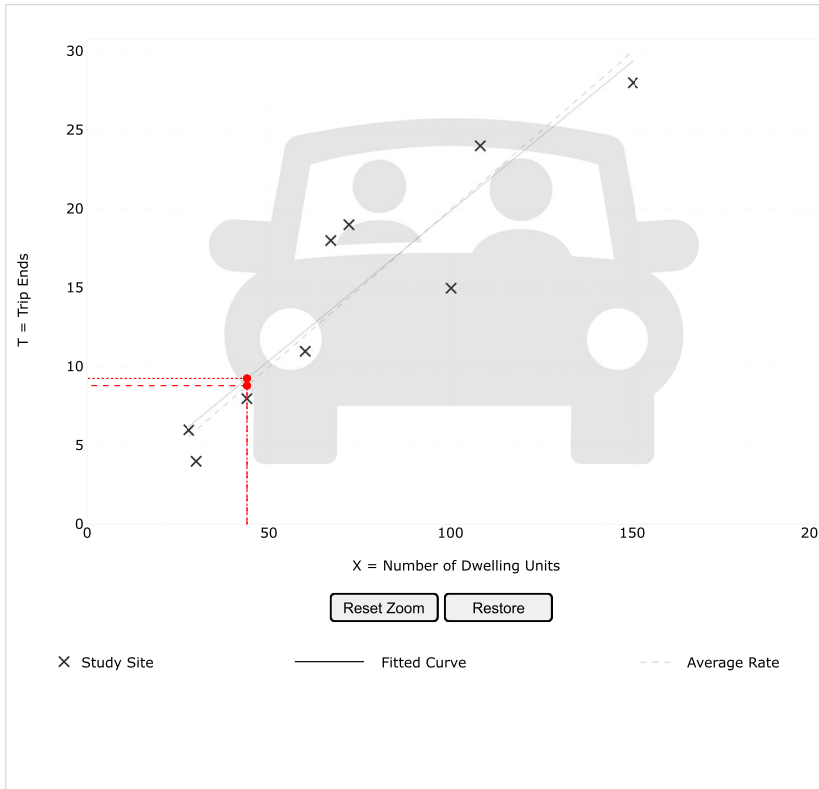
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
44

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:	Senior Adult Housing - Multifamily (252) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	9
Avg. Num. of Dwelling Units:	73
Average Rate:	0.20
Range of Rates:	0.13 - 0.27
Standard Deviation:	0.04
Fitted Curve Equation:	$T = 0.19(X) + 0.90$
R²:	0.85
Directional Distribution:	34% entering, 66% exiting
Calculated Trip Ends:	Average Rate: 9 (Total), 3 (Entry), 6 (Exit) Fitted Curve: 9 (Total), 3 (Entry), 6 (Exit)





Graph Look Up

ITETripGen Web-based App

Graph Look Up

How to Use ITETripGen

TGM Desk Reference

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Try OTISS Pro

Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
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LAND USE GROUP:
(200-299) Residential

LAND USE:
252 - Senior Adult Housing - Multifamily

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

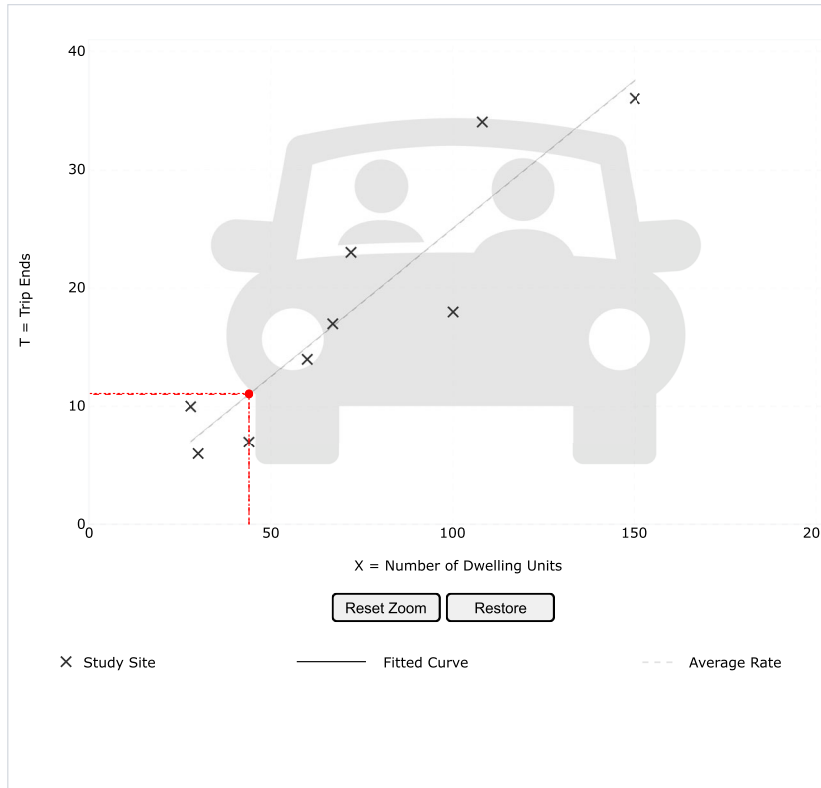
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
44 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Senior Adult Housing - Multifamily (252) [Click for Description and Data Plots](#)

Independent Variable:
Dwelling Units

Time Period:
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
9

Avg. Num. of Dwelling Units:
73

Average Rate:
0.25

Range of Rates:
0.16 - 0.36

Standard Deviation:
0.06

Fitted Curve Equation:
 $T = 0.25(X) + 0.07$

R²:
0.84

Directional Distribution:
56% entering, 44% exiting

Calculated Trip Ends:
Average Rate: 11 (Total), 6 (Entry), 5 (Exit)
Fitted Curve: 11 (Total), 6 (Entry), 5 (Exit)

JOURNEY-TO-WORK TRIP DISTRIBUTIONS



Proposed Residential Development
Topsfield, Massachusetts

Residence	Workplace	Number	High Street Extension (West)		Main Street (North)		East Common Street (North)		High Street (East)		Main Street (South)			
Topsfield town	Topsfield town	593	15%	89	15%	89	10%	59	10%	59	50%	297		0
Topsfield town	Boston city	315		0		0		0	100%	315		0		0
Topsfield town	Beverly city	220		0		0		0	100%	220		0		0
Topsfield town	Danvers town	182		0		0		0	100%	182		0		0
Topsfield town	Peabody city	172		0		0		0	100%	172		0		0
Topsfield town	Lynn city	158		0		0		0	100%	158		0		0
Topsfield town	Salem city	145		0		0		0	100%	145		0		0
Topsfield town	Ipswich town	131		0	100%	131		0		0		0		0
Topsfield town	Newburyport city	107		0	100%	107		0		0		0		0
Topsfield town	Woburn city	78		0		0		0	100%	78		0		0
Topsfield town	Andover town	68	100%	68		0		0		0		0		0
Topsfield town	Rowley town	55		0	100%	55		0		0		0		0
Topsfield town	Burlington town	54		0		0		0	100%	54		0		0
Topsfield town	Gloucester city	52		0	25%	13		0	75%	39		0		0
Topsfield town	Somerville city	46		0		0		0	100%	46		0		0
Topsfield town	Waltham city	45		0		0		0	100%	45		0		0
Topsfield town	Lowell city	41	100%	41		0		0		0		0		0
Topsfield town	Boxford town	38	50%	19	50%	19		0		0		0		0
Topsfield town	North Reading town	37	100%	37		0		0		0		0		0
Topsfield town	Middleton town	33	100%	33		0		0		0		0		0
Topsfield town	North Andover town	31	100%	31		0		0		0		0		0
Topsfield town	Hamilton town	29		0	50%	15		0	50%	15		0		0
Topsfield town	Medford city	29		0		0		0	100%	29		0		0
Topsfield town	Holliston town	26		0		0		0	100%	26		0		0
Topsfield town	Watertown Town city	24		0		0		0	100%	24		0		0
Topsfield town	Needham town	24		0		0		0	100%	24		0		0
Topsfield town	Marblehead town	23		0		0		0	100%	23		0		0
Topsfield town	Framingham town	23		0		0		0	100%	23		0		0
Topsfield town	Groveland town	20		0	100%	20		0		0		0		0
		2,799		318		448		59		1,677		297		0
				11.4%		16.0%		2.1%		59.9%		10.6%		0.0%
		<u>SAY</u>		11.0%		16.0%		2.0%		60.0%		11.0%		0.0%

CAPACITY ANALYSIS WORKSHEETS

Main Street at High Street and High Street Extension
High Street at East Common Street
High Street at South Common Street and the Project Site Driveway
SimTraffic Reports



Main Street at High Street and High Street Extension



2022 Existing Weekday Morning
1: Main Street & High Street Extension/High Street

07/29/2022

Intersection												
Int Delay, s/veh	141.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	211	49	31	83	108	16	84	13	280	137	5
Future Vol, veh/h	2	211	49	31	83	108	16	84	13	280	137	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	90	90	90	88	88	88	87	87	87
Heavy Vehicles, %	0	1	0	0	2	8	19	10	0	1	1	0
Mvmt Flow	3	335	78	34	92	120	18	95	15	322	157	6

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1049	950	160	1150	946	103	163	0	0	110	0	0
Stage 1	804	804	-	139	139	-	-	-	-	-	-	-
Stage 2	245	146	-	1011	807	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.51	6.2	7.1	6.52	6.28	4.29	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.009	3.3	3.5	4.018	3.372	2.371	-	-	2.209	-	-
Pot Cap-1 Maneuver	207	~ 261	890	177	262	936	1319	-	-	1486	-	-
Stage 1	380	397	-	869	782	-	-	-	-	-	-	-
Stage 2	763	778	-	291	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	94	~ 196	890	-	197	936	1319	-	-	1486	-	-
Mov Cap-2 Maneuver	94	~ 196	-	-	197	-	-	-	-	-	-	-
Stage 1	374	~ 303	-	856	770	-	-	-	-	-	-	-
Stage 2	577	766	-	-	300	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	427.4		1.1	5.4
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1319	-	-	227	-	1486	-	-
HCM Lane V/C Ratio	0.014	-	-	1.832	-	0.217	-	-
HCM Control Delay (s)	7.8	0	-	427.4	-	8.1	0	-
HCM Lane LOS	A	A	-	F	-	A	A	-
HCM 95th %tile Q(veh)	0	-	-	29	-	0.8	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2022 Existing Weekday Evening
1: Main Street & High Street Extension/High Street

08/01/2022

Intersection												
Int Delay, s/veh	26.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	106	12	25	143	284	27	183	20	103	102	1
Future Vol, veh/h	7	106	12	25	143	284	27	183	20	103	102	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	97	97	97	82	82	82	85	85	85
Heavy Vehicles, %	0	3	0	0	1	1	8	0	0	3	1	0
Mvmt Flow	9	136	15	26	147	293	33	223	24	121	120	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	884	676	121	739	664	235	121	0	0	247	0	0
Stage 1	363	363	-	301	301	-	-	-	-	-	-	-
Stage 2	521	313	-	438	363	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.2	7.1	6.51	6.21	4.18	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.3	3.5	4.009	3.309	2.272	-	-	2.227	-	-
Pot Cap-1 Maneuver	268	374	936	336	382	807	1430	-	-	1313	-	-
Stage 1	660	623	-	712	667	-	-	-	-	-	-	-
Stage 2	542	655	-	601	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	102	328	936	204	335	807	1430	-	-	1313	-	-
Mov Cap-2 Maneuver	102	328	-	204	335	-	-	-	-	-	-	-
Stage 1	642	561	-	693	649	-	-	-	-	-	-	-
Stage 2	260	637	-	404	564	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	28.5		53.5		0.9		4	
HCM LOS	D		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1430	-	-	309	501	1313	-	-
HCM Lane V/C Ratio	0.023	-	-	0.519	0.93	0.092	-	-
HCM Control Delay (s)	7.6	0	-	28.5	53.5	8	0	-
HCM Lane LOS	A	A	-	D	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.8	11.2	0.3	-	-

2029 No-Build Weekday Morning
 1: Main Street & High Street Extension/High Street

08/01/2022

Intersection												
Int Delay, s/veh	234											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	234	54	34	92	120	18	93	14	312	152	6
Future Vol, veh/h	2	234	54	34	92	120	18	93	14	312	152	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	90	90	90	88	88	88	87	87	87
Heavy Vehicles, %	0	1	0	0	2	8	19	10	0	1	1	0
Mvmt Flow	3	371	86	38	102	133	20	106	16	359	175	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1169	1059	179	1279	1054	114	182	0	0	122	0	0
Stage 1	897	897	-	154	154	-	-	-	-	-	-	-
Stage 2	272	162	-	1125	900	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.51	6.2	7.1	6.52	6.28	4.29	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.009	3.3	3.5	4.018	3.372	2.371	-	-	2.209	-	-
Pot Cap-1 Maneuver	172	~ 225	869	144	226	923	1297	-	-	1472	-	-
Stage 1	337	~ 360	-	853	770	-	-	-	-	-	-	-
Stage 2	738	766	-	251	357	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	59	~ 161	869	-	162	923	1297	-	-	1472	-	-
Mov Cap-2 Maneuver	59	~ 161	-	-	162	-	-	-	-	-	-	-
Stage 1	331	~ 262	-	838	757	-	-	-	-	-	-	-
Stage 2	537	753	-	-	260	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 712.9		1.1	5.5
HCM LOS	F		-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	187	-	1472	-	-
HCM Lane V/C Ratio	0.016	-	-	2.462	-	0.244	-	-
HCM Control Delay (s)	7.8	0	-	\$ 712.9	-	8.2	0	-
HCM Lane LOS	A	A	-	F	-	A	A	-
HCM 95th %tile Q(veh)	0	-	-	38.6	-	1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2029 No-Build Weekday Evening
 1: Main Street & High Street Extension/High Street

08/01/2022

Intersection												
Int Delay, s/veh	56.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	118	14	28	159	315	30	203	23	114	114	1
Future Vol, veh/h	8	118	14	28	159	315	30	203	23	114	114	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	97	97	97	82	82	82	85	85	85
Heavy Vehicles, %	0	3	0	0	1	1	8	0	0	3	1	0
Mvmt Flow	10	151	18	29	164	325	37	248	28	134	134	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	984	753	135	823	739	262	135	0	0	276	0	0
Stage 1	403	403	-	336	336	-	-	-	-	-	-	-
Stage 2	581	350	-	487	403	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.2	7.1	6.51	6.21	4.18	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.3	3.5	4.009	3.309	2.272	-	-	2.227	-	-
Pot Cap-1 Maneuver	229	338	919	295	346	779	1413	-	-	1281	-	-
Stage 1	628	598	-	682	644	-	-	-	-	-	-	-
Stage 2	503	631	-	566	601	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	68	291	919	154	298	779	1413	-	-	1281	-	-
Mov Cap-2 Maneuver	68	291	-	154	298	-	-	-	-	-	-	-
Stage 1	609	530	-	661	624	-	-	-	-	-	-	-
Stage 2	210	611	-	352	533	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	44.9		121.4		0.9		4.1	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1413	-	-	260	448	1281	-	-
HCM Lane V/C Ratio	0.026	-	-	0.69	1.155	0.105	-	-
HCM Control Delay (s)	7.6	0	-	44.9	121.4	8.1	0	-
HCM Lane LOS	A	A	-	E	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	4.6	18.9	0.3	-	-

2029 Build Weekday Morning
 1: Main Street & High Street Extension/High Street

08/01/2022

Intersection												
Int Delay, s/veh	233.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	234	54	35	92	121	18	93	14	313	152	6
Future Vol, veh/h	2	234	54	35	92	121	18	93	14	313	152	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	90	90	90	88	88	88	87	87	87
Heavy Vehicles, %	0	1	0	0	2	8	19	10	0	1	1	0
Mvmt Flow	3	371	86	39	102	134	20	106	16	360	175	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1171	1061	179	1281	1056	114	182	0	0	122	0	0
Stage 1	899	899	-	154	154	-	-	-	-	-	-	-
Stage 2	272	162	-	1127	902	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.51	6.2	7.1	6.52	6.28	4.29	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.51	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.009	3.3	3.5	4.018	3.372	2.371	-	-	2.209	-	-
Pot Cap-1 Maneuver	171	~ 225	869	144	225	923	1297	-	-	1472	-	-
Stage 1	336	~ 359	-	853	770	-	-	-	-	-	-	-
Stage 2	738	766	-	251	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	58	~ 161	869	-	161	923	1297	-	-	1472	-	-
Mov Cap-2 Maneuver	58	~ 161	-	-	161	-	-	-	-	-	-	-
Stage 1	330	~ 261	-	838	757	-	-	-	-	-	-	-
Stage 2	536	753	-	-	259	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 712.9		1.1	5.5
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1297	-	-	187	-	1472	-	-
HCM Lane V/C Ratio	0.016	-	-	2.462	-	0.244	-	-
HCM Control Delay (s)	7.8	0	-	\$ 712.9	-	8.2	0	-
HCM Lane LOS	A	A	-	F	-	A	A	-
HCM 95th %tile Q(veh)	0	-	-	38.6	-	1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2029 Build Weekday Evening
 1: Main Street & High Street Extension/High Street

08/01/2022

Intersection												
Int Delay, s/veh	59											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	119	14	29	159	316	30	203	23	115	114	1
Future Vol, veh/h	8	119	14	29	159	316	30	203	23	115	114	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	97	97	97	82	82	82	85	85	85
Heavy Vehicles, %	0	3	0	0	1	1	8	0	0	3	1	0
Mvmt Flow	10	153	18	30	164	326	37	248	28	135	134	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	986	755	135	826	741	262	135	0	0	276	0	0
Stage 1	405	405	-	336	336	-	-	-	-	-	-	-
Stage 2	581	350	-	490	405	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.2	7.1	6.51	6.21	4.18	-	-	4.13	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.1	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.3	3.5	4.009	3.309	2.272	-	-	2.227	-	-
Pot Cap-1 Maneuver	229	337	919	293	345	779	1413	-	-	1281	-	-
Stage 1	626	597	-	682	644	-	-	-	-	-	-	-
Stage 2	503	631	-	564	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	68	289	919	151	296	779	1413	-	-	1281	-	-
Mov Cap-2 Maneuver	68	289	-	151	296	-	-	-	-	-	-	-
Stage 1	607	529	-	661	624	-	-	-	-	-	-	-
Stage 2	209	611	-	349	532	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	45.7		127.2		0.9		4.1	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1413	-	-	259	444	1281	-	-
HCM Lane V/C Ratio	0.026	-	-	0.698	1.17	0.106	-	-
HCM Control Delay (s)	7.6	0	-	45.7	127.2	8.1	0	-
HCM Lane LOS	A	A	-	E	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	4.7	19.5	0.4	-	-

High Street at East Common Street



2022 Existing Weekday Morning
2: High Street & East Common Street

07/29/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	51	453	213	16	2	9
Future Vol, veh/h	51	453	213	16	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	92	92	46	46
Heavy Vehicles, %	0	1	5	6	0	0
Mvmt Flow	66	588	232	17	4	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	249	0	-	0	961 241
Stage 1	-	-	-	-	241 -
Stage 2	-	-	-	-	720 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1328	-	-	-	287 803
Stage 1	-	-	-	-	804 -
Stage 2	-	-	-	-	486 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1328	-	-	-	266 803
Mov Cap-2 Maneuver	-	-	-	-	266 -
Stage 1	-	-	-	-	745 -
Stage 2	-	-	-	-	486 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1328	-	-	-	587
HCM Lane V/C Ratio	0.05	-	-	-	0.041
HCM Control Delay (s)	7.9	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

2022 Existing Weekday Evening
2: High Street & East Common Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	47	182	447	20	3	5
Future Vol, veh/h	47	182	447	20	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	97	97	54	54
Heavy Vehicles, %	0	4	1	0	0	0
Mvmt Flow	58	225	461	21	6	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	482	0	-	0	813 472
Stage 1	-	-	-	-	472 -
Stage 2	-	-	-	-	341 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1091	-	-	-	351 596
Stage 1	-	-	-	-	632 -
Stage 2	-	-	-	-	725 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1091	-	-	-	330 596
Mov Cap-2 Maneuver	-	-	-	-	330 -
Stage 1	-	-	-	-	593 -
Stage 2	-	-	-	-	725 -

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1091	-	-	-	458
HCM Lane V/C Ratio	0.053	-	-	-	0.032
HCM Control Delay (s)	8.5	0	-	-	13.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

2029 No-Build Weekday Morning
2: High Street & East Common Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	57	503	236	18	2	10
Future Vol, veh/h	57	503	236	18	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	92	92	46	46
Heavy Vehicles, %	0	1	5	6	0	0
Mvmt Flow	74	653	257	20	4	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	277	0	-	0	1068
Stage 1	-	-	-	-	267
Stage 2	-	-	-	-	801
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1298	-	-	-	248
Stage 1	-	-	-	-	782
Stage 2	-	-	-	-	445
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1298	-	-	-	226
Mov Cap-2 Maneuver	-	-	-	-	226
Stage 1	-	-	-	-	712
Stage 2	-	-	-	-	445

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	552
HCM Lane V/C Ratio	0.057	-	-	-	0.047
HCM Control Delay (s)	7.9	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

2029 No-Build Weekday Evening
2: High Street & East Common Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	52	203	496	23	3	6
Future Vol, veh/h	52	203	496	23	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	97	97	54	54
Heavy Vehicles, %	0	4	1	0	0	0
Mvmt Flow	64	251	511	24	6	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	535	0	-	0	902
Stage 1	-	-	-	-	523
Stage 2	-	-	-	-	379
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1043	-	-	-	311
Stage 1	-	-	-	-	599
Stage 2	-	-	-	-	696
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1043	-	-	-	289
Mov Cap-2 Maneuver	-	-	-	-	289
Stage 1	-	-	-	-	556
Stage 2	-	-	-	-	696

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1043	-	-	-	426
HCM Lane V/C Ratio	0.062	-	-	-	0.039
HCM Control Delay (s)	8.7	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

2029 Build Weekday Morning
2: High Street & East Common Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	57	504	238	18	2	10
Future Vol, veh/h	57	504	238	18	2	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	77	77	92	92	46	46
Heavy Vehicles, %	0	1	5	6	0	0
Mvmt Flow	74	655	259	20	4	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	279	0	-	0	1072 269
Stage 1	-	-	-	-	269 -
Stage 2	-	-	-	-	803 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1295	-	-	-	246 775
Stage 1	-	-	-	-	781 -
Stage 2	-	-	-	-	444 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1295	-	-	-	224 775
Mov Cap-2 Maneuver	-	-	-	-	224 -
Stage 1	-	-	-	-	711 -
Stage 2	-	-	-	-	444 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1295	-	-	-	550
HCM Lane V/C Ratio	0.057	-	-	-	0.047
HCM Control Delay (s)	7.9	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

2029 Build Weekday Evening
2: High Street & East Common Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	52	205	498	23	3	6
Future Vol, veh/h	52	205	498	23	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	97	97	54	54
Heavy Vehicles, %	0	4	1	0	0	0
Mvmt Flow	64	253	513	24	6	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	537	0	-	0	906
Stage 1	-	-	-	-	525
Stage 2	-	-	-	-	381
Critical Hdwy	4.1	-	-	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	2.2	-	-	-	3.5
Pot Cap-1 Maneuver	1041	-	-	-	309
Stage 1	-	-	-	-	598
Stage 2	-	-	-	-	695
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1041	-	-	-	287
Mov Cap-2 Maneuver	-	-	-	-	287
Stage 1	-	-	-	-	555
Stage 2	-	-	-	-	695

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1041	-	-	-	424
HCM Lane V/C Ratio	0.062	-	-	-	0.039
HCM Control Delay (s)	8.7	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

High Street at South Common Street and the Project Site Driveway



2022 Existing Weekday Morning
3: South Common Street & High Street

07/29/2022

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	455	0	0	221	8	19
Future Vol, veh/h	455	0	0	221	8	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	77	77	54	54
Heavy Vehicles, %	2	2	3	3	14	11
Mvmt Flow	523	0	0	287	15	35

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	810 523
Stage 1	-	-	-	-	523 -
Stage 2	-	-	-	-	287 -
Critical Hdwy	-	-	-	-	6.54 6.31
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	-	-	-	-	3.626 3.399
Pot Cap-1 Maneuver	-	0	0	-	333 537
Stage 1	-	0	0	-	571 -
Stage 2	-	0	0	-	735 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	333 537
Mov Cap-2 Maneuver	-	-	-	-	333 -
Stage 1	-	-	-	-	571 -
Stage 2	-	-	-	-	735 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	455	-	-
HCM Lane V/C Ratio	0.11	-	-
HCM Control Delay (s)	13.9	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

2022 Existing Weekday Evening
3: South Common Street & High Street

08/01/2022

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	185	0	0	451	16	30
Future Vol, veh/h	185	0	0	451	16	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	70	70
Heavy Vehicles, %	3	3	0	0	13	0
Mvmt Flow	213	0	0	480	23	43

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	693 213
Stage 1	-	-	-	-	213 -
Stage 2	-	-	-	-	480 -
Critical Hdwy	-	-	-	-	6.53 6.2
Critical Hdwy Stg 1	-	-	-	-	5.53 -
Critical Hdwy Stg 2	-	-	-	-	5.53 -
Follow-up Hdwy	-	-	-	-	3.617 3.3
Pot Cap-1 Maneuver	-	0	0	-	393 832
Stage 1	-	0	0	-	797 -
Stage 2	-	0	0	-	600 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	393 832
Mov Cap-2 Maneuver	-	-	-	-	393 -
Stage 1	-	-	-	-	797 -
Stage 2	-	-	-	-	600 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	599	-	-
HCM Lane V/C Ratio	0.11	-	-
HCM Control Delay (s)	11.7	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

2029 No-Build Weekday Morning
3: South Common Street & High Street

08/01/2022

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	505	0	0	245	9	22
Future Vol, veh/h	505	0	0	245	9	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	77	77	54	54
Heavy Vehicles, %	2	2	3	3	14	11
Mvmt Flow	580	0	0	318	17	41

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	898 580
Stage 1	-	-	-	-	580 -
Stage 2	-	-	-	-	318 -
Critical Hdwy	-	-	-	-	6.54 6.31
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	-	-	-	-	3.626 3.399
Pot Cap-1 Maneuver	-	0	0	-	295 498
Stage 1	-	0	0	-	537 -
Stage 2	-	0	0	-	711 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	295 498
Mov Cap-2 Maneuver	-	-	-	-	295 -
Stage 1	-	-	-	-	537 -
Stage 2	-	-	-	-	711 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	415	-	-
HCM Lane V/C Ratio	0.138	-	-
HCM Control Delay (s)	15.1	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.5	-	-

2029 No-Build Weekday Evening
3: South Common Street & High Street

08/01/2022

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Traffic Vol, veh/h	206	0	0	501	18	33
Future Vol, veh/h	206	0	0	501	18	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	70	70
Heavy Vehicles, %	3	3	0	0	13	0
Mvmt Flow	237	0	0	533	26	47

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	-	770 237
Stage 1	-	-	-	-	237 -
Stage 2	-	-	-	-	533 -
Critical Hdwy	-	-	-	-	6.53 6.2
Critical Hdwy Stg 1	-	-	-	-	5.53 -
Critical Hdwy Stg 2	-	-	-	-	5.53 -
Follow-up Hdwy	-	-	-	-	3.617 3.3
Pot Cap-1 Maneuver	-	0	0	-	354 807
Stage 1	-	0	0	-	777 -
Stage 2	-	0	0	-	567 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	354 807
Mov Cap-2 Maneuver	-	-	-	-	354 -
Stage 1	-	-	-	-	777 -
Stage 2	-	-	-	-	567 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	556	-	-
HCM Lane V/C Ratio	0.131	-	-
HCM Control Delay (s)	12.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

2029 Build Weekday Morning
 3: South Common Street/Project Site Driveway & High Street

08/01/2022

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↗			↕			↕	
Traffic Vol, veh/h	1	505	0	0	245	2	9	0	22	4	0	2
Future Vol, veh/h	1	505	0	0	245	2	9	0	22	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	77	77	92	54	92	54	92	92	92
Heavy Vehicles, %	2	2	2	3	3	2	14	2	11	2	2	2
Mvmt Flow	1	580	0	0	318	2	17	0	41	4	0	2

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	320	0	-	-	-	0	902	902	580	922	901	319
Stage 1	-	-	-	-	-	-	582	582	-	319	319	-
Stage 2	-	-	-	-	-	-	320	320	-	603	582	-
Critical Hdwy	4.12	-	-	-	-	-	7.24	6.52	6.31	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.626	4.018	3.399	3.518	4.018	3.318
Pot Cap-1 Maneuver	1240	-	0	0	-	-	246	277	498	251	278	722
Stage 1	-	-	0	0	-	-	478	499	-	693	653	-
Stage 2	-	-	0	0	-	-	667	652	-	486	499	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1240	-	-	-	-	-	245	277	498	230	278	722
Mov Cap-2 Maneuver	-	-	-	-	-	-	245	277	-	230	278	-
Stage 1	-	-	-	-	-	-	478	499	-	692	653	-
Stage 2	-	-	-	-	-	-	665	652	-	446	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.1	17.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	383	1240	-	-	-	298
HCM Lane V/C Ratio	0.15	0.001	-	-	-	0.022
HCM Control Delay (s)	16.1	7.9	0	-	-	17.4
HCM Lane LOS	C	A	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	-	0.1

2029 Build Weekday Evening
 3: South Common Street/Project Site Driveway & High Street

08/01/2022

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↗			↕			↕	
Traffic Vol, veh/h	2	206	0	0	501	4	18	0	33	3	0	2
Future Vol, veh/h	2	206	0	0	501	4	18	0	33	3	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	94	94	92	70	92	70	92	92	92
Heavy Vehicles, %	2	3	3	0	0	2	13	2	0	2	2	2
Mvmt Flow	2	237	0	0	533	4	26	0	47	3	0	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	537	0	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	-
Pot Cap-1 Maneuver	1031	-	0	0
Stage 1	-	-	0	0
Stage 2	-	-	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1031	-	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	13.3	15.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	504	1031	-	-	-	352
HCM Lane V/C Ratio	0.145	0.002	-	-	-	0.015
HCM Control Delay (s)	13.3	8.5	0	-	-	15.4
HCM Lane LOS	B	A	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	-	0

SimTraffic Reports



1: Main Street & High Street/High Street Extension Performance by lane

Lane	NB	SB	SE	NW	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					1.9
Total Del/Veh (s)	1.5	4.6	88.1	13.3	28.2

2: High Street & East Common Street Performance by lane

Lane	SB	SE	NW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	169.1	1.2	19.3	9.9

3: High Street & South Common Street Performance by lane

Lane	EB	SE	NW	All
Movements Served	LR	T	T	
Denied Del/Veh (s)				0.8
Total Del/Veh (s)	12.3	0.2	4.9	2.2

Total Network Performance

Denied Del/Veh (s)	2.4
Total Del/Veh (s)	35.1

Intersection: 1: Main Street & High Street/High Street Extension

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	132	506	57
Average Queue (ft)	6	48	197	31
95th Queue (ft)	25	96	479	56
Link Distance (ft)	241	508	496	8
Upstream Blk Time (%)			7	56
Queuing Penalty (veh)			0	126
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: High Street & East Common Street

Movement	SB	SE	NW
Directions Served	LR	LT	TR
Maximum Queue (ft)	84	37	165
Average Queue (ft)	21	9	81
95th Queue (ft)	75	33	173
Link Distance (ft)	559	8	148
Upstream Blk Time (%)		1	7
Queuing Penalty (veh)		3	18
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: High Street & South Common Street

Movement	EB	SE	NW
Directions Served	LR	T	T
Maximum Queue (ft)	68	4	164
Average Queue (ft)	22	0	16
95th Queue (ft)	55	3	97
Link Distance (ft)	46	148	312
Upstream Blk Time (%)	6		1
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 148

1: Main Street & High Street/High Street Extension Performance by movement

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Denied Del/Veh (s)	0.1	0.2	0.1	0.4	0.4	0.4	281.4	271.5	295.9	0.0	0.1	0.0
Total Del/Veh (s)	2.3	2.0	0.9	5.5	4.5	2.5	238.9	176.9	163.1	26.7	25.3	10.5

1: Main Street & High Street/High Street Extension Performance by movement

Movement	All
Denied Del/Veh (s)	74.1
Total Del/Veh (s)	51.8

2: High Street & East Common Street Performance by movement

Movement	SBL	SBR	SEL	SET	NWT	NWR	All
Denied Del/Veh (s)		0.1	0.0	0.0	6.2	13.2	2.1
Total Del/Veh (s)		178.1	2.2	1.1	47.9	44.9	18.9

3: South Common Street & High Street Performance by movement

Movement	SET	NWT	NEL	NER	All
Denied Del/Veh (s)	0.0	0.6	68.0	53.1	2.3
Total Del/Veh (s)	0.2	40.6	137.4	25.0	14.8

Total Network Performance

Denied Del/Veh (s)	72.8
Total Del/Veh (s)	71.2

Intersection: 1: Main Street & High Street/High Street Extension

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	45	167	447	57
Average Queue (ft)	6	57	352	34
95th Queue (ft)	26	121	556	50
Link Distance (ft)	178	429	407	28
Upstream Blk Time (%)			67	43
Queuing Penalty (veh)			0	109
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: High Street & East Common Street

Movement	SB	SE	NW
Directions Served	LR	LT	TR
Maximum Queue (ft)	114	36	191
Average Queue (ft)	24	14	129
95th Queue (ft)	83	39	221
Link Distance (ft)	438	28	164
Upstream Blk Time (%)		1	26
Queuing Penalty (veh)		5	71
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: South Common Street & High Street

Movement	NW	NE
Directions Served	T	LR
Maximum Queue (ft)	420	96
Average Queue (ft)	98	31
95th Queue (ft)	331	77
Link Distance (ft)	486	59
Upstream Blk Time (%)	2	12
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 185

1: Main Street & High Street/High Street Extension Performance by lane

Lane	NB	SB	SE	NW	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					84.9
Total Del/Veh (s)	2.1	5.2	217.6	19.8	60.0

2: High Street & East Common Street Performance by lane

Lane	SE	NW	SW	All
Movements Served	LT	TR	LR	
Denied Del/Veh (s)				6.4
Total Del/Veh (s)	1.1	55.9	1243.2	39.3

3: South Common Street/Project Site Driveway & High Street Performance by lane

Lane	SE	NW	NE	SW	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					11.7
Total Del/Veh (s)	0.2	69.7	63.8	133.2	25.7

Total Network Performance

Denied Del/Veh (s)	90.1
Total Del/Veh (s)	99.0

Intersection: 1: Main Street & High Street/High Street Extension

Movement	NB	SB	SE	NW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	60	189	466	55
Average Queue (ft)	8	57	397	29
95th Queue (ft)	34	126	590	45
Link Distance (ft)	166	429	446	20
Upstream Blk Time (%)			68	54
Queuing Penalty (veh)			0	137
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: High Street & East Common Street

Movement	SE	NW	SW
Directions Served	LT	TR	LR
Maximum Queue (ft)	31	170	202
Average Queue (ft)	7	135	111
95th Queue (ft)	28	210	263
Link Distance (ft)	20	144	318
Upstream Blk Time (%)	0	45	0
Queuing Penalty (veh)	2	122	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: South Common Street/Project Site Driveway & High Street

Movement	NW	NE	SW
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	365	93	55
Average Queue (ft)	157	30	9
95th Queue (ft)	401	75	39
Link Distance (ft)	341	63	245
Upstream Blk Time (%)	19	14	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 260
